July-August 1995

PROGRAM MANAGER

Journal of the Defense Systems Management College

PROGRAM MANAGER

Journal of the Defense Systems Management College

Vol. XXIV, No. 4, DSMC 127

Published by the
DEFENSE SYSTEMS MANAGEMENT COLLEGE PRESS

Commandant
Brig. Gen. Claude M. Bolton, Jr., USAF

Provost and Deputy Commandant
Edward Hirsch

Dean, Division of College Administration and Services
Col. William E. Knight

Director, DSMC Press and Art Director
Greg Caruth

PROGRAM MANAGER

Managing Editor
Collie J. Johnson

Art Director
Greg Caruth

Typography and Design
Paula Croisetiere
Jeanne Elmore

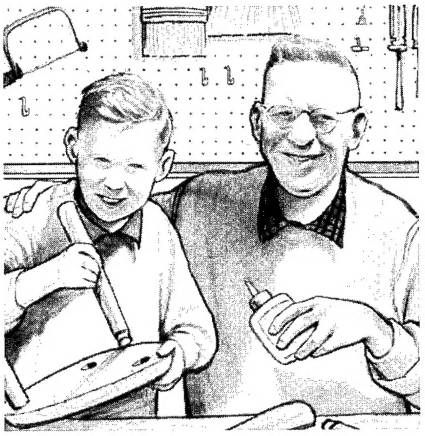
Program Manager *(ISSN 0199-7114) is published bimonthly by the Defense Systems Management College Press.*

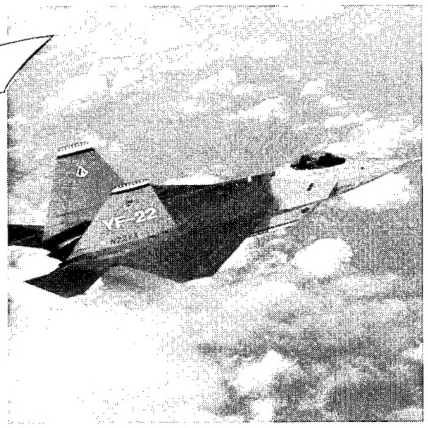
POSTMASTER: Send address changes to:
DEFENSE SYST MGMT COLLEGE
ATTN DSMC PRESS
9820 BELVOIR ROAD
SUITE G38
FT BELVOIR VA 22060-5565

To subscribe, government personnel should submit written requests (using their business address) to the above address.

Nongovernment organizations and employees may order this useful periodical for one year; cite Program Manager (PROM) and send a check for $11.00 ($13.75 foreign) or provide VISA or MasterCard number and expiration date, to: Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Telephone credit card orders can be made 8 a.m. to 4 p.m. eastern time, to (202) 512-1800. Orders can be faxed 24 hours a day to (202) 512-2250.

Manuscripts, Letters to the Editor, and other correspondence are welcome and should be addressed as above. Inquiries concerning proposed articles may be made by phone at (703) 805-2892/3056 or DSN 655-2892/3056.





Whenever feminine or masculine nouns or pronouns appear, other than with obvious reference to named individuals, they have been used for literary purposes and are meant in their generic sense.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	July-August 1995	Journal

4. TITLE AND SUBTITLE
Program Manager - Journal of the Defense Systems Management College

5. FUNDING NUMBERS

6. AUTHOR(S)
Numerous Authors

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Defense Systems Management College
ATTN: DSMC Press
9820 Belvoir Road
Suite G38
Fort Belvoir, VA 22060-5565

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Same as 7.

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

Program Manager is intended to be a vehicle for the transmission of information on policies, trends, events and current thinking affecting program management and defense systems acquisition.

14. SUBJECT TERMS
Acquisition Deskbook; F-22 IPD Teams; Partnerships in Education; GE Leadership School; Risk Management

15. NUMBER OF PAGES
56

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

Cover: J. Ronald Fox, Edward Hirsch and George Krikorian give us "A View From the Trenches" and examine the unreasonable pressures on Defense program managers.

12

DSMC's St. Louis Education Experience

Julius Hein
Patty Predith

Keep the students happy, teach them a lot, and keep them challenged.

14

DSMC Collaborates with UT-Austin on New Graduate Degree Program

Collie J. Johnson

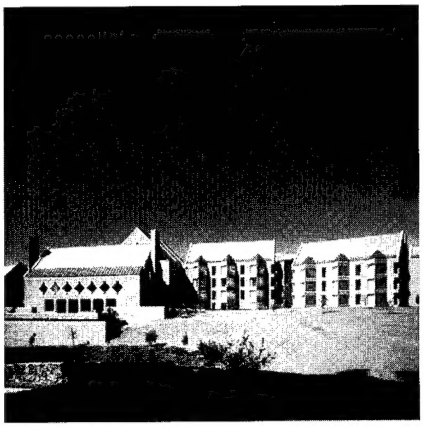
College continues partnerships in education with institutions of higher learning.

22

Some Homespun Wisdom on Risk Management

John Sweeney

An acquisition reform manager contrasts risk management with risk aversion.



46

GE Leadership School Hosts DSMC Delegation

Mary-jo Hall

Winning in the marketplace...the ultimate job security!

ALSO

UNREASONABLE PRESSURES ON DEFENSE PROGRAM MANAGERS

J. Ronald Fox • Edward Hirsch • George Krikorian

The authors recently completed an 8-month study of persistent problems in defense acquisition. This article presents conclusions from part of the study dealing with conflicts inherent in program manager roles and incentives.

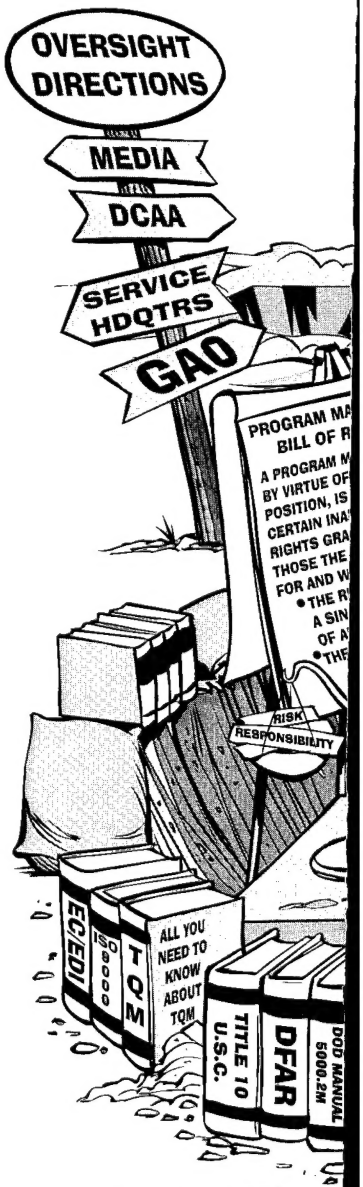
Background

At the request of the Office of the Under Secretary of Defense (Systems Integration), we undertook the study to examine problems pertaining to roles and responsibilities of government program management.[1] As a starting point, we first conducted extensive field interviews of experienced government and industry acquisition managers. Our study did not assess the strengths and weaknesses of the defense acquisition process, nor did it evaluate the mechanics of the acquisition process—as important as those mechanics may be. Competent work on these topics has been undertaken by organizations inside and outside the Department of Defense.

Specifically, we conducted interviews with 80 experienced acquisition managers, each interviewed for periods ranging from 1 to 2 hours on a not-for-attribution basis.[2] Senior acquisition managers (current or recent) from the Army, Navy, Air Force and the Office of the Secretary of Defense (OSD) proposed government managers for participation in the study. Likewise, government acquisition managers and senior officials of the American Defense Preparedness (Industry) Association recommended selected industry managers. We encouraged their participation as individuals, not as representatives of government or industry. Fully 89 percent of those interviewed completed follow-up questionnaires. The depth of feeling and the high level of consistency across the views expressed was compelling.

Findings[3]

The interviews produced surprisingly strong dissatisfaction with respect to government program management roles and incentives. Most government and industry managers do not see conflict or unnecessary overlap between government and industry management as a major problem. Rather, their concern focuses on the major mismatch between the requirements placed on program managers to report realistic program status,



Professor Fox is the Tiampo Professor Emeritus at the Harvard Business School.

Brig. Gen. (Ret.) Hirsch is Provost and Deputy Commandant, DSMC.

Professor Krikorian is the Forrestal-Richardson Professor of Program Management (Industry Chair), DSMC.

Government and industry views from program managers in the trenches highlight critical issues in the defense acquisition culture that can prevent program success.

on the one hand, and doing whatever is necessary to keep a program funded and moving through the acquisition process, on the other.

Senior officers of the Military Services invariably commit themselves to obtaining the products of their Service's acquisition programs within a wide range of costs and technical performance. Because a program manager's future assignments and promotions depend on the approval of the senior officers of the Military Service, clearly, a program manager's No. 1 priority is keeping a program alive and moving through the acquisition process.

Defense program managers and their superiors too often perceive program cancellations or reductions in scope as failure. Reports of anticipated cost growth, schedule slippage or technical performance shortfalls on acquisition programs have an adverse effect on OSD and congressional support that can lead to reductions in scope or cancellations. Consequently, when problems occur on a program, government program managers often must decide whether the "success" of the program, meaning its continuing existence and movement through the acquisition process, takes precedence over reporting realistic projections of costs to complete the program. Too often a program manager's course of action is to go along with the "game," hoping to be transferred before the true costs of the program become known. To expect program managers to blow the whistle on their own Services is an unsurmountable difficulty when the senior officers who evaluate their performance and who control their futures underestimate and overpromise the program from the beginning. **This is the reality described by many government managers and by managers in defense industry firms**.

It is almost a cliché to state that the numerous reforms initiated during the past three decades to produce more realistic program assessments have not had the desired effects. "Reforms" — in the form of new laws, regulations and recommendations from outside panels (e.g., The Packard Commission or the Section 800 Panel) — achieved limited success, not because they contained bad ideas or focused on the wrong issues. To the contrary, reforms generally targeted well-recognized acquisition problems such as identifying and correcting problems early in the acquisition cycle, making cost estimates more realistic, reducing duplication, enhancing program stability, improving the quality of the acquisition workforce, and putting better information in the hands of decision makers when they need it.[4]

"The program manager is there to be a proponent of the system. Show me a program manager who is not a program advocate and I'll show you one who is about to lose his job."

"The mixed signals in the current acquisition process create an issue of integrity for the people operating it."

"If the program does not make it through the hurdles, my chances of promotion take a nose dive."

"The entire DoD acquisition process is heavily biased toward excessive optimism on the part of both government and industry managers. The desires of the Services are greater than their budgets. The Services are always trying to put 10 pounds in a 5-pound bag."

"The government program manager for the [name deleted] program reported to the Under Secretary of Defense: 'Everything is under control. We can do it. The program is going well.' His briefing identified no real issues. It was like a slide show. Everything they told the Under Secretary was accurate. It's what they didn't tell him that presented the big problems. Why does this occur? Because [military service] officers want the program even more than the contractor wants to sell it to the government."

"Having government program managers report to operational commanders places them in a position of inevitable conflict in roles."

"If the program does not get through the wickets, the government program manager will not get promoted. At best, the assignments that the government program manager will be offered are such that he would probably prefer to retire. A loser is just not welcome in the service."

"There is a strong incentive to postpone problems. You don't want to have a problem on your watch — and you will soon be transferred to another job anyway. If I just sit tight for another 6 months, I'll have my orders, I'll be gone."

Editor's Note: The complete set of government and industry practitioner views is contained in Volume II of the report, *Critical Issues in the Defense Acquisition Culture*, December 1994.

They were unsuccessful because they did not deal with the underlying incentives that cause acquisition managers to behave as they do.

In early 1993, the U.S. General Accounting Office (GAO) published a report on the causes of persistent acquisition problems.[5] They concluded that some problems occur not because they are inadvertent, but because they are encouraged. For example, while some problems in cost estimating are due to flaws in methodology and to unforeseen technical problems, the more pervasive cause is undue optimism and lack of realism in reporting program cost estimates and program status to higher levels. This does not occur by chance or because estimators lack know-how, but because undue optimism helps programs gain approval and survive.

The GAO also concluded that performance shortfalls, schedule delays and cost increases are the logical consequences of the acquisition culture. Acquisition managers operate as they do because the system rewards them for doing so. While individual participants see their needs as rational and aligned with the national interest, strong affiliation with the goals of a Military Service creates incentives for promoting programs and encouraging undue optimism. Similarly, program sponsors in a Military Service often downplay and rebut critical information developed by oversight organizations, such as the DoD Cost Analysis Improvement Group, the Director for Defense Operational Test and Evaluation, the Inspector General, the GAO or the Press. The sponsors' reactions are rational, because they realize that bad news can tip the scales of support away from the program, leading to funding cuts and possible program termination. **Government and industry managers in the current study confirm these findings.**

Conclusions

Proposals to correct the problem of program advocacy delaying or distort-

ing evidence of schedule, cost or technical performance problems generally run the gamut from adding controls, increasing management layers, streamlining and issuing more explicit direction to program managers, to having program manager reports bypass the Services' systems commands, and creating program executive officers and service acquisition executives. Past attempts at reform often sought organizational, procedural or coercive solutions to make things happen without necessarily addressing why they were not happening previously. For example, **acquisition executives initiated recommendations aimed at improving the realism of cost estimates, but these are difficult to implement when the acquisition process itself does not reward realism.**[6]

These reform measures have not ensured that realistic program information is brought forward in a more timely manner. For example, the Navy withheld critical information about the status of the A-12 aircraft program at several key junctures — most notably during DoD's Major Aircraft Review and at the time of a subsequent decision to exercise a contract option on the first production lot. *The underlying cultural pressures that cause such information to be optimistic in the first place have not changed.* The fact remains that optimistic information helps a program proceed, while negative information can delay or jeopardize a program.[7] The solution to this problem can only be found at the level of the Secretary of Defense and the Under Secretary of Defense for Acquisition and Technology (USD[A&T]).

Program managers and program executive officers align their loyalties with the chain of command that exists *within* their Military Service. Inevitably, they too often tend to view OSD as the adversary rather than as the senior office of the chain of command. If this situation occurred in the commercial world between a corporate office and the corporate divisions, the corporate office could not afford to decentralize management to the divisions, as desirable as that objective may be. Rather, they would need to maintain close oversight over the divisions, apply rigorous controls, and conduct independent cost estimating and program reviews. Indeed, this is the manner in which the OSD has operated, for good reason, during the past several decades.

Program managers, program executive officers and other participants in the Service acquisition organizations recognize clearly who it is that controls their future assignments and promotions. When there are differences in goals between the Military Services and OSD, they recognize who it is that they should not let down, and who should have the most accurate information about their programs. It is the senior officers in the Service acquisition chain who actually have and exercise the authority to make promotions, withhold promotions, and dispense desirable future assignments. The OSD has large oversight organizations (e.g., Program Analysis and Evaluation, Comptroller, Systems Integration, Department of Defense Inspector General) because it needs these organizations when conflicts of interest or loyalties may likely surface. Experience during the past several decades proved the wisdom of this approach in the current culture.

In situations where industry managers align corporate division goals and incentives with the corporate headquarters, decentralized management is possible — indeed desirable. If the Department of Defense can find a way to align the incentives of the Service acquisition corps with OSD so that program managers and program executive officers view the USD(A&T) as the boss with genuine control over the distribution and withholding of promotions and key assignments, OSD could then place more faith in the information it receives from the Services and would be able to decentralize its acquisition management.

Controlling rewards would not *guarantee* that acquisition programs will never again be underestimated and overpromised by the Military Services. It will mean, however, that field managers implementing the acquisition process will be far more realistic in reporting to the USD(A&T) who will have the authority to assign rewards and penalties for performance.

After 30 years of attempts by the OSD to obtain realistic assessments of program status and unbiased cost estimates to complete acquisition programs, clearly, delays in obtaining candid assessments will continue until DoD resolves the conflict in program manager roles and responsibilities and those of the OSD. Effective management of the acquisition process means that the incentives that drive program managers and program executive officers should reward, not penalize, realistic reporting.

Realistic program assessments will not occur until all the Services view the USD(A&T) as controlling the assignments, training, and promotion of the professional managers necessary to operate the acquisition process. The past three decades demonstrated that having program managers [and now program executive officers] beholden to senior officers in the Military Services so strongly committed to fielding the weapons they believe their troops must have, will cause them to avoid reporting news that will endanger their programs.

If OSD and the Military Services wish to manage the acquisition process with professional, competent managers drawn from their best and brightest officers and civilians, they need to create career paths and promotions that attract outstanding officers to key acquisition management assignments and to provide the training and experience required to perform those assignments well. As long as military officers and civilians view acquisition positions as "broadening assignments" or as "terminal assign-

"The government program manager's primary objective is to keep the program alive until the product is delivered."

"Today any program that smacks of having a problem gets shot, and the people in the program get shot."

"Today program managers are frightened and they delay identifying problems. Suppressed information also led to the Challenger accidents. Problems were not reported because of concern that reporting them would delay the program. Suppressing problems should be the basis for the first order of firing people."

"Government program managers are told they are responsible for the success of their programs. Success means getting the program through the wickets on budget and on schedule. The program manager must keep selling the weapon's capabilities above him in the government. He must keep the program moving through the boards that approve milestones one, two, three. This means keeping people up the line sufficiently well informed to be comfortable with the program and to keep it moving through the wickets."

"The program manager's boss, like the program manager, has significant pressures to make himself look good over a period of no more than 2 to 3 years. In industry, the normal checks and balances apply to a much longer period of time."

"Government program managers have a tendency to allow engineering changes (ECP) to stack up and to create a backlog. Program managers are often so worried about cost increases endangering their programs that they tend to ignore contractor ECPs, put them in a drawer and not act on them. They accumulate, and then later the balloon bursts and everyone is surprised by the sudden cost increase. This often happens where there is a large program management office. Engineers associated with the government office are always developing ideas on how to make the program better. They work together with people in the contractor's plant and the attitude they have is: "Oh, the contractor can absorb that." They often do not understand the cost of changes.

"You put people in government program management jobs and tell them what you want them to do, and then give them an incentive system that punished them for doing what you tell them and rewards them for postponing problems and getting a program through the process irrespective of cost and schedule. What do you think you will get? You will get what you reward."

"If you have a long-standing relationship with your boss, you let him know about problems and you do not cover them up."

"The government program manager is concerned about getting money from higher levels and keeping support for the program."

Editor's Note: The complete set of government and industry practitioner views is contained in Volume II of the report, *Critical Issues in the Defense Acquisition Culture*, December 1994.

ments" prior to retirement, in the hopes of developing experience and contacts for post-retirement careers, DoD's success in producing anywhere near the required numbers of highly skilled, experienced professional acquisition managers is unlikely.

Recommendation

To remove program managers from the pressures to report only good news (avoiding or delaying reports of realistic program assessments), the USD(A&T) must exercise clear operational control of the Army, Navy and Air Force acquisition organizations. This change is needed to provide consistent incentives to program managers and to produce an unambiguous chain of command for assignment of responsibility and accountability from the USD(A&T) to the Service acquisition organizations and their program managers. During the next several years this change can produce a corps of trained and experienced professional acquisition managers, led by individuals at the top who have actually experienced life on the line. Two purposes served by this chain of command are: (1) providing focused direction to the enterprise; and (2) establishing the free flow of timely and accurate information — both up and down the chain.

The USD(A&T) can then decide whether it is effective and efficient to keep the three acquisition organizations separate or to consolidate parts of their activities. Irrespective of whether the current Service acquisition organizations remain separate, however, they should be placed under the direct control of the USD(A&T) who will have both assignment authority and promotion authority for military and civilian personnel assigned to the acquisition corps.

The Military Departments will retain the responsibility for determining requirements and programming resources to meet those requirements. The Acquisition Program Baseline can serve as a contract between the

USD(A&T) and the military user. The USD(A&T) will have final responsibility for determining the cost of a proposed system acquisition. The Military Departments will need to provide funding to the baseline cost, or alter requirements.

The USD(A&T) needs to make clear by public statements and by the use of assignments, transfers and promotions within the acquisition corps, that effective management, including candor and realism in reporting, will be rewarded by the OSD. Most program managers do not have that assurance today.

Some within the OSD express the view that the time has come to write off program managers as incapable of reporting realistic information and that acquisition programs should be managed centrally from the OSD. Adopting that approach would be a mistake. Complex engineering development programs of a size and number required by the Army, Navy, Air Force and Marine Corps cannot be managed effectively from a centralized, remote organization. The F-111, C-5A and the DoD fixed-price development programs of the 1980s clearly demonstrated the fallacy of that approach. Program managers, with the information they receive from contractors and from government plant representatives, are able to make realistic assessments of their programs, provided they are not penalized for doing so. They are loyal to their superiors, and they do not want to let them down. They would prefer to report realistic information if their superiors did not view those reports as acts of disloyalty.

Some may argue that statutory changes will be required before this transfer of authority can be established. We disagree. Title 10, United States Code, states that each Secretary of a Military Department has responsibility for equipping the force (including research and development). Even if the USD(A&T) has direct control over the acquisition workforce assignments and promotions and a direct reporting chain to program managers, the Service Secretaries can retain responsibility for initiating the acquisition program process to equip the forces, formulate acquisition budgets, and make priority decisions among acquisition programs competing for scarce resources. The Services can also retain responsibility for operational test and evaluation. They would become "customers" who submit orders for equipment to an acquisition organization charged with obtaining this equipment within agreed-to cost, schedule and technical performance parameters. Indeed, this type of practice occurs to a limited degree today: the Army is the single manager for acquisition of conventional ammunition within DoD, while the other Services continue to establish their ammunition requirements and budgets.

Postscript

Acquisition managers can only function as well as the system in which they work allows them to operate. A fundamental problem in defense acquisition today is that program managers are too often placed in positions of conflicting roles and loyalties. The time is long overdue to correct this fundamental problem in acquisition management. Today Secretary of Defense Perry and Under Secretary of Defense Kaminski are committed to correcting the longstanding problems in defense acquisition. The new Congress is looking for ways to demonstrate that they can break with the erroneous practices of the past. This is a rare opportunity for the Administration and the Congress to join together in solving a difficult, longstanding conflict unreasonably imposed on program managers for decades.

Editor's Note: Copies of the report, *Critical Issues in the Defense Acquisition Culture*, December 1994, can be obtained from the Executive Institute, Defense Systems Management College, 9820 Belvoir Road, Ft. Belvoir, VA 22060-5565.

Endnotes

1. Gary Christle from the OSD Program Integration Office requested this study, provided helpful encouragement, and allowed the study to be performed without restraints or qualifications on its findings and recommendations.

2. Practioners interviewed included 33 defense industry managers (25 program managers/general managers and 8 vice presidents or senior managers of contracting/procurement) and 47 government managers (14 flag officers currently or recently in acquisition management positions; 11 program managers not flag officers [nine O-6s, one O-5, one SES]; six senior acquisition/oversight managers above the level of program managers; three directors of contracts; eight program office division chiefs or senior government acquisition managers/analysts; and five Defense Plant Representatives Office commanders).

3. Statements of practices and problems are taken from interviews with government and industry managers. Conclusions and the final Recommendation are the responsibility of the authors.

4. *Weapons Acquisition: A Rare Opportunity for Lasting Change*, GAO/NSIAD-93-15, December 1992, p. 51.

5. Ibid, pp. 35-39.

6. Attempts by acquisition executives to obtain realistic information on weapon programs from the Military Services fell far short of their goals. In 1990, the GAO reported that to protect programs from criticism, the Services were reluctant to provide the OSD current program information, such as updated cost estimates (*Defense Acquisition: Perspectives on Key Elements for Effective Management* [GAO/NSIAD-90-90, May 14, 1990]). In fact, top-level acquisition participants' demands for better program information can intensify the protectionism of program sponsors (*Beyond Distrust: Building Bridges Between Congress and the Executive*, a report by a Panel of the National Academy of Public Administration, January 1992).

7. Ibid, pp. 53-54.

THE STEM OF MOST LEARNING — "I WONDER"

Has "The System" Programmed Most of Our Learning?

Joseph A. Drelicharz

"Have you ever wondered," is a most interesting inquiry because the answer is "of course." Why would anyone ask a question like that? Because the question is the stem of most learning. The child that climbs to the roof of the garage is responding to wonder. Wonder is drawn from within, and not hosed or sprinkled on the individual from an external authority. It has meaning and in most cases, consequences. If you think back to the learning events that are most imprinted in your mind, they will most often be associated with a trauma, good or bad. The higher the perceived consequence, the deeper the imprint.

"The System"

So what happened? Why do we as a society think that education is throwing money at an oratorical "wizard" standing in a pit pontificating. And educational worth is enumerated by the number of people taking notes at the same time. Generally, the worth of these "wizards" is determined by their price or the applause they can engender, and has nothing to do with their quality or the quantity of notes taken. It certainly has nothing to do with any learning that may have taken place.

Mr. Drelicharz is a Professor of Engineering Management, School of Program Management Division, DSMC. Assigned to DSMC in November 1982, he is a graduate of PMC 87-1.

Perhaps this analogy may appear a bit absurd, and it certainly is a dramatization. However, consider this: the only thing more absurd is that most of the people taking the notes do not want to be there. Society — "The System" — has taught us to "get the ticket punched" and have a better life or at least survive. Learning, therefore, becomes programmed, often stifling the "I Wonder" of the child within us.

Programmed and Inquiry Learning

The system has programmed the learning for us. Programs abound — one for doctors, one for nurses, another for engineers, etc. Program managers even have one. It seems everyone has a program, which quite often has little relevance to reality or the certification acquired. But what happened to that child-like wonderment? What happened to the "why" — a refrain familiar to all parents? What happened to the thirst for knowledge — the "what if's": what if I climb that garage; what if I push that button; what if turn that knob; what if I do it this way instead of how I've always done it before?

Do you notice that each "what if" is associated with "doing" — with some action — and always evokes a question? Thus, the "what if's" are, in reality, the onset of a form of experiential learning. They do not detract from the relevant programmed learning; they simply express "I want to know more."

My favorite example, relates to my own experience with my grandfather. He liked to work with wood, so one day we started a project together, building a stool. "You sit, watch and listen," were his first instructions. Then, "with great discipline," he taught me about the tools: their care, their storage, the dangers involved, and finally their use. When he was sure I understood the tools, he built a three-legged stool. I watched, and was sure I knew how to build the stool. However, when I tried, I failed. The seat cracked; I drilled too deep — anything that could go wrong *did* go wrong.

With great patience, "we" built a second stool together. He was a wonderful coach, and then he said, "you build one and I will watch." I did. It wasn't very pretty, but it was a stool. Even though we now were up to our eyeballs in stools, we had accomplished some rather sophisticated programmed learning. Since most people never get beyond the "knowing about the tools" stage, I was feeling pretty proud of my efforts.

Several projects later, actually years later, I built another stool, but with some "what if's": what if I changed the shape of the seat; added another leg; used a different type of wood; or...?

And I started thinking about the effect of wood grain and the wood itself. Without realizing it, I worked my way through some thought processes that approach a simple analysis. Yes, it was a fine stool — but not perfect.

It wasn't until college that my curiosity really took over, and I began studying far beyond "the program" curriculum about woods, designs and finishes; at this point, again without realizing it, I entered the realm of inquiry learning.

Today I can build a professional quality stool. I can walk into a store, look at a stool and identify the quality, the cost and the labor involved. In a very simple example, I've discussed most stages of learning by almost any taxonomy.

Although programmed and inquiry learning are the most common learning elements, there is yet a third element that is indirectly spoken to in the "building a stool" example: the learning environment. It includes not only the ability to get the information, but also the social environment that invites curiosity, that sponsors the search and the discovery, that enables people to learn safely from their "not

If he had, in any way, shown displeasure with my lack of knowledge about his tools, my inability to use them, or even the damage to them that I know I caused, I would not have progressed through the various stages of learning.

yet" successes. Errors, mistakes or failures, in my grandfather's view, were "not yet" successes. If he had, in any way, shown displeasure with my lack of knowledge about his tools, my inability to use them, or even the damage to them that I know I caused, I would not have progressed through the various stages of learning.

A culture that rewards success and punishes "not yet" success is not a learning culture, if for no other reason than the fact that little is to be learned from success. Success can be attributed to the alignment of the stars or even a lot of things going right without our knowledge. Learning is the finding out which one of "a lot of things" was out of alignment, resulting in a "not yet" success; figuring out how to put it into correct position for success, and then trying it one more time.

Synergism

Synergism is a relatively common phenomenon in business, pharmaceutical, learning and many other activities. According to Webster, it is the simultaneous action of separate entities, which together have a greater total effect than the sum of their individual effects. When an individual can wonder, think or query in a safe environment, the next step is to seek other thinkers — others that are empowered, others that have walked the trails before them, others that have experienced "not yet" successes. Everyone is an expert in something. When we reach this stage, yet another phenomenon occurs — transference. Transference is the ability to take any experience and cognate it to a seemingly unrelated experience. As an example, how does a pot-luck lunch relate to a construction project?

Diversity

Diversity becomes very important; it begs of challenges to assumptions, to perceptions, to boundaries long forgotten. An old acquaintance once said, "If I find myself disagreeing with someone, it's probably because I don't understand them or what they saying." Great wisdom abides in that statement because, for the most part, people do try to help one another or at least stay neutral. They come to the inquiry from different backgrounds, with different experiences, and with different thought processes. It's OK to disagree and to challenge — as long as you understand that the other party believes their perspective is correct, even though you may know with certainty that their perspective is decidedly incorrect. If this is understood, then reframing of the problem can occur. New windows open, and the inquiry may then be looked at from different angles.

Puzzles, Problems and Issues

Puzzles, problems and issues present important concepts in learning, because rare is the person who truly learns for the sake of learning. It does happen, but for the most part people learn to enable them to do something, even if that something is merely to "look important" or "punch the right ticket." So what are the differences between puzzles, problems and issues?

- Puzzles have a singular solution, so when presented with a puzzle, the right strategy is "just do it." Although it may be a test of cleverness or skill, it is a non-problem. Simplistically, once you complete the puzzle, it will look like the picture on the box.
- Problems can be defined as ill-defined situations that can have many solutions or considerations — they're complex; they have consequences.
- Issues are less complex problems you can resolve. If you can preface your inquiry with "how can I," and the problems presented are truly within your authority to solve, then you are dealing with issues.

Puzzles are fun. We have all experienced doing something that was fun. Usually, we already knew how to solve a puzzle with minimal training; the challenges were slight. Problems, on the other hand, are philosophical: pontification runs rampant; assumptions are numerous. Changing the current acquisition culture, for example, is one of many problems to be resolved in the area of acquisition reform. Problems may require resolution of many issues. My car stalls on the highway; I'm out of gasoline — I have serious problems. But my issues become, "how can I get help" or "how can I get to where I'm going"? Issues, therefore, become the sources of most day-to-day learning experiences. How do we differentiate issues in our daily learning experiences, and more importantly, how do we learn from them? There are several approaches; all are acceptable. All are as complete or as incomplete as the situations to which they are applied.

- Identify symptoms in an environment.
- Brainstorm apparent and implied issues.
- Identify major issues and consolidate minor issues.
- Triage major issues based on an analysis of the impact of doing nothing.
- Develop viable alternative plans of action.
- Select an alternative plan of action for implementation based on mitigating the impact.
- Attempt implementation.
- Assess a "not yet" success.
- Modify the action plan or revisit other alternatives based on the assessment.
- Potentially repeat the cycle, as needed.

Conclusion

The highest form of learning is not achieved in the classroom listening to or working hypothetical problems; or working puzzles that have no real consequences. Nor is it accomplished in seminars listening to "experts" speak to their past successes. It is the same source of the Edison light bulb, the atomic bomb, our Top Gun pilots, and the Iacocca's of the world. And it all starts with..."I wonder."

Easter Bunny Goes To College

Several volunteers from the staff and faculty, DSMC, learned that it doesn't take much to spread a little happiness around. Recently, they had the privilege of hosting 36 exceptional children, ages 3 to 10, at the DSMC Annual Easter Egg Hunt. Easter Bunny, taking time from his busy schedule, put in a guest appearance to the delight of all.

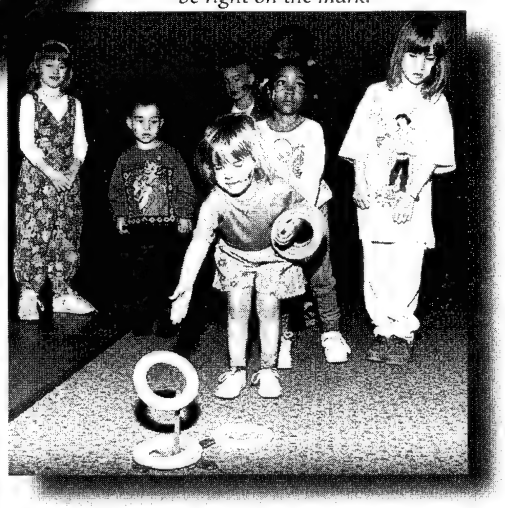
For the last 8 years, DSMC's Audio-Visual Department, working with Alma Keating, Army Community Services (ACS), has hosted an Annual Easter Egg Hunt in conjunction with the ACS Exceptional Family Member Program. Alma works with the families, while DSMC provides hotdogs, chips, soda, juice, toys and Easter Baskets. These items are either donated by various commissary vendors or purchased with money from DSMC fund raisers. This year's event, coordinated by Petty Officer 2nd Class David Jopson, USN, came to around $2,000 — money well spent in view of the smiles and laughter of 36 *very* exceptional children.

Easter Bunny (a.k.a. Bob Carlson) leads the way as the hunt begins!

Capt. Diggs Cleveland, USA — a big hit with the children — was designated the Michelangelo of face painting.

Photos by Richard Mattox

This cute miss shows her style in the ring toss, and appears to be right on the mark.



DSMC 1995 Annual Easter Egg Hunt Volunteers

DSMC'S ST. LOUIS EDUCATION EXPERIENCE

Julius Hein • Patty Predith

DoD photos

Standing in line at the cafeteria in the U.S. Army Aviation and Troop Command, St. Louis, Mo., one might speculate on why so many Air Force, Navy and Marine Corps officers are seen around the Federal Center. The answer is simple—they're students at the DoD Defense Systems Management College (DSMC).

History

The Defense Systems Management College opened its St. Louis campus in January 1985. Shortly thereafter, in May 1985 the College dedicated its new facility at the St. Louis Federal Center. The College's Central Region Director is Julius Hein; the Region's management support assistant is Patty Predith.

The St. Louis campus came into being as a result of the demand for courses and the high TDY costs associated with sending students to the main campus at Fort Belvoir. Since 1976, DSMC has exported its course offerings and signed Memoranda of Agreement with host organizations to support "mini" DSMCs. In addition to the St. Louis Central Region, DSMC currently has three other Regional Centers:

- Western Region: U.S. Air Force Space Division, Los Angeles, California.
- Eastern Region: U.S. Air Force Hanscom Air Force Base, Boston, Mass.
- Southern Region: U.S. Army Missile Command, Redstone Arsenal, Ala.

At the Central Region, we offer 25 to 40 courses per year. The majority are taught by the course director, and supplemented by DSMC faculty members and guest lecturers. All courses are part of the Defense Acquisition University's (DAU) certification program. Generally, all students participating in the certification program at Levels I, II or III belong to one of the professional acquisition career fields. The following "birds eye" view of our activities, learning environment and amenities give you an idea of what to expect when attending one of our courses in St. Louis.

Through-put

We offer courses, seminars and workshops to all four Services, other federal agencies, defense industries, universities and research institutions. Our annual through-put for FY 94 was 1,080 students in courses, and 499 students in seminars and workshops. Our students come from all 50 states and overseas commands. The majority of the students are selected through the Army Training Requirements and Resources System program — a program currently used by all four Services.

Keeping Our Students Informed

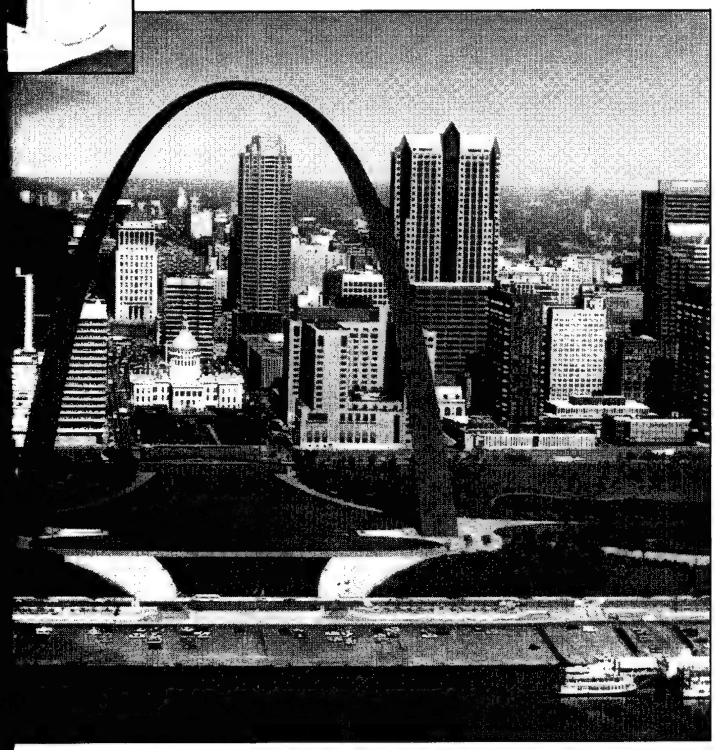
Initially, we send each student a welcome package with directions to our classrooms, parking, dress attire, course overview materials and tourist information about our beautiful city of St. Louis. As another service to our out-of-town students and visiting professors, we suggest billeting arrangements. About 10 to 15 percent of selected students do not show up for the start of the class, and we then must supplement with stu-

Dr. Hein is Director, DSMC Central Region, St. Louis, Missouri. Mrs. Predith is the Central Region Management Support Assistant.

dents willing to attend on a "stand-by" basis. Because our Regional offices and classrooms are in close proximity to Scott Air Force Base, Ill., the Defense Logistics Agency, Coast Guard, McDonnell Douglas and other defense industries, "stand-by" students readily fill the gap for those who do not show up at the start of the course. At the start of any given course, we usually have 3 to 5 students lingering outside the classroom on the first day hoping to attend — and interestingly, most do.

Registration

As our students register, soft music resonates throughout the classroom, creating a relaxed, non-threatening first impression of our Region and its facilities. Students are then shown their seat assignment and given, by Service, a color coded name tent, e.g., green for Army, dark blue for Navy, light blue for Air Force, red for Marine Corps, yellow for DLA and white for industry.



Top: Students share a light moment during classes at the St. Louis Regional Center. Left: Dr. Julius Hein, Director, DSMC Central Region. Arch symbolizing the city of St. Louis, Mo. — Gateway to the West and home of DSMC's Central Region.

The course materials — writing pad, pencil and welcome folder — are set up at each student's seat. Included in the welcome folder are: the St. Louis Region FY95 schedule, career path chart, miscellaneous command information, command map, auto/airline/taxi phone numbers, various sport schedules, and St.Louis and community recreational pamphlets. We expect students to be prompt — classes start at 0800 sharp. At this time, the Regional Director gives an introduction by welcoming the students to our Region and introducing the assistant, the course directors and any visiting faculty.

Afterwards, our assistant presents various administrative information to the students and faculty regarding parking, badging, materials, lodging, telephone and fax availability. The director proceeds with an overview, and the course is then underway.

Entertainment Committee

During this introductory period, each table "nominates" a spokesperson to serve on the entertainment committee. The process is a controlled, yet free-flowing and unrestrained election. The entertainment committee members meet at noon with the Regional Director and assistant and plan activities that encourage camaraderie, classroom participation and networking throughout the duration of the course. We encourage students to bring an instrument along for social gatherings. For social or working gatherings, the entertainment committee selects the lunch menu. Food is either catered and eaten in the classroom or purchased and consumed in the main cafeteria. These working lunches give us an excellent opportunity to get to know one another. For now and the future, we unequivocally support the importance of student interaction and networking.

Amenities

Our motto is: *Keep the students happy, teach them a lot, and keep them challenged.* To achieve that end, our Center provides several amenities:

Large classroom to accommodate 40 students • cushioned chairs • large tables • markerboards on all four walls • butcher block easels • faculty table • supply/reference area • message board • overhead and 35mm slide projector with screen • two 35" Mitsubishi suspended color monitors • podium stand • entertainment center with compact disc and cassette tape player • 3/4"and 1/2" video cassette recorders • adjacent breakout room • individual storage space for course materials and belongings • conference table and cushioned chairs • additional reference material • refreshment, fruit and snack area • commercial and DSN telephone instruments • computer and modem hook-ups • telefax machine services • library check-out services for books and tapes • barber shop • mail service • reproduction capabilities • medical support • consulting services • individual mentoring • university program guidance • industry points of contact • visit to industry.

If it sounds like the DSMC Central Region is a great place to learn, it's because we are. Your continued professional acquisition education is our business — *our only business.* We're here to serve *you.* Give us the opportunity to serve *your* needs as you pursue higher learning in the acquisition arena — and good luck in that endeavor! Hopefully, *we'll meet you in St. Louis!*

DSMC COLLABORATES WITH UT-AUSTIN ON NEW GRADUATE DEGREE PROGRAM

Partnering in New Ways with Industry and Higher Education

Collie J. Johnson

Speaking at a Press Conference held at the National Press Club, Washington D.C., on 8 March 1995, Brig. Gen. Claude M. Bolton, Jr., USAF, Commandant, Defense Systems Management College (DSMC), welcomed the University of Texas at Austin (UT-Austin) and its representatives to DSMC's Fort Belvoir campus. As a result of the critical need for educational programs that link directly to helping U.S. industry become more competitive in the world marketplace, UT-Austin, beginning in August 1995, will offer a Master of Science degree in Science & Technology Commercialization in the Washington, D.C. area. This degree will prepare industry and government executives, federal laboratory and military technology managers to better commercialize technology in the public and private sectors.

DSMC as Host

According to General Bolton, "this relationship continues our [DSMC] College's involvement in partnerships in education with institutions of higher learning." He noted that we already provide facilities for the George Washington University, Northern Virginia Community College, Strayer College and the University of Maryland.

Referring to Department of Defense's (DoD) continuing efforts in the area of acquisition reform, General Bolton stated that the agreement between UT-Austin and the Fort Belvoir garrison commander is in line with recent Federal Government initiatives to reinvent government under the National Performance Review.

Photo by Richard Mattox

It's "hands-across" in agreement for representatives of the Defense Systems Management College (DSMC), Fort Belvoir Army Education Center, and the University of Texas at Austin (UT-Austin). From left: Col. William E. Knight, USA, Dean, Division of College Administration and Services, DSMC; Ms. Nancy Johnson, Director, Army Education Center, Fort Belvoir, Va.; Dr. George Kozmetsky, Director, IC² Institute, UT-Austin; and Brig. Gen. Claude M. Bolton, Jr., USAF, Commandant, DSMC.

Ms. Johnson is Managing Editor, Program Manager, DSMC Press.

tiatives to reinvent government under the National Performance Review. "The title of the masters program itself — Science & Technology Commercialization — certainly reflects DoD initiatives to promote the dual use of technology for both defense and commercial usage, and supports the rationale of defense acquisition reform currently underway."

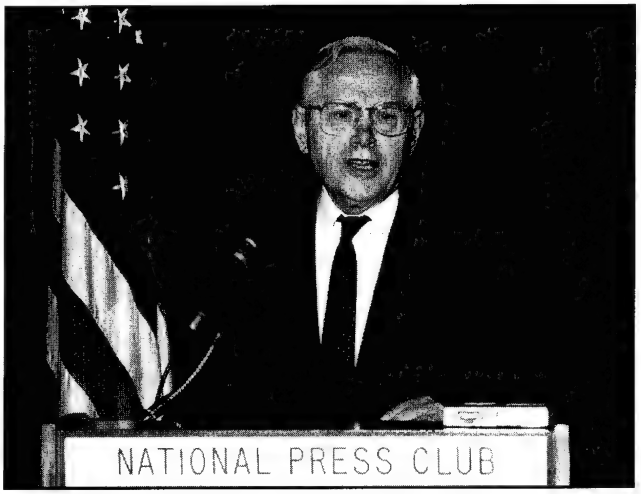


Photo by Richard Mattox

Dr. George Kozmetsky, Director, IC² Institute; and Graduate Adviser of the UT-Austin Science and Technology Commercialization Degree, delivers a message on UT-Austin's new graduate degree program. Dr. Kozmetsky is the recipient of the 1994 National Medal of Technology (awarded by the U.S. Department of Commerce).

The DSMC, according to General Bolton, in aspiring to be the academy of management for the Department of Defense and the four Military Services, is in its 24th year of educating and training today's defense program managers in sound systems management principles. "Surely," he continued, "the University of Texas program will parallel much of what we teach our military, government civilian, and defense industry students. I believe this is another excellent opportunity for government and academe to learn and profit from one another."

About the Course

The agreement was preceded by months of preparation and restructuring by UT-Austin. Realizing that a critical core of technology managers in the Washington D.C. area could benefit from such a program, UT-Austin developed and structured the curricula so that students could remain on the job while pursuing a graduate degree in Science & Technology Commercialization. Interestingly, this is the first degree program that UT-Austin has offered totally outside the state of Texas.

The program will be offered in "executive" format, with classes held every other week on Friday and Saturday. To allow students greater latitude in remaining on their job or post, UT-Austin structured the program to provide completion and graduation in 12 months. Applicants must apply to the Graduate School of the University of Texas at Austin.

This degree will prepare industry and government executives, federal laboratory and military technology managers to better commercialize technology in the public and private sectors.

The new graduate degree program consists of 33 course hours and offers students a choice of concentration in technology policy or in technology enterprise. A Master of Science degree will be conferred upon the successful completion of course work and a professional report. Prospective students should have a minimum of 5 years' experience in management, and will be required to have access to a personal computer with modem so they can communicate with professors and other students during non-class times, and conduct research through online computer network services.

Dr. Kozmetsky's Role

Dr. George Kozmetsky, the Dean of Graduate Studies and Director of the IC² Institute at UT-Austin, welcomed the agreement. Speaking at the Press Conference, Kozmetsky spoke of the rapid expansion of the commercialization career field. "As the United States creates more jobs and wealth and maintains a leadership position in the world marketplace, the commercialization of federal, university and privately developed research and development is a key competitive advantage. This career field is expanding at a rapid pace, with increasing demand for knowledgeable professionals who can actively participate in the successful transfer and commercialization of technology."

DSMC — A Proud Participant

Concluding his remarks, General Bolton stated that we at the Defense Systems Management College "are proud to be a continuing active participant in helping to research, devise and promote the acquisition reform measures directed by Dr. William Perry, the Secretary of Defense." As his final comment, he stated that "we are excited and proud about our new partner in education, the University of Texas at Austin, and look forward to a mutually satisfactory relationship with them in the future."

Editor's Note: For more information, prospective students should call 1-800-218-6782 or E-Mail: exec.ms @icc.utexas.edu.

THE FACE OF TRAINING... CHANGING AT DSMC

Lt. Col. (Sel.) James A. Rego, Jr., USAF

According to Peter F. Drucker, *"Information is data endowed with relevance and purpose; converting data into information thus requires...KNOWLEDGE."* On that note, imagine if you can, the classroom of the future. Here, students do not learn by sitting passively and transcribing notes as they are fed information through the mechanical droning of an instructor. Imagine, if you can, the classroom of the future where *education is an interactive process of discovery* — a place where computers bring experiences and knowledge *to life* for students. In this classroom, the students pursue their own answers, their own desire to learn... interactively.

What will bring these experiences and knowledge to life for students? The answer is to be found in interactive exploration for information using "hot-key" techniques — receiving text, animation and video clip responses to inquiries, thus capturing the attention and encouraging further exploration. Innovative multimedia delivery of information, not only as pictures and words but as videos and voices of real people, will soon capture the interest and imagination of students in the classroom of the future.

Imagination is Reality at DSMC

These multimedia technologies are changing the way the DSMC students learn *now!* The Intermediate Contract Performance Management Course (ICPMC) is currently being developed as a 2-week simulation of a "real-world" program. Designed to be almost 80 percent computer-based, the ICPMC simulation places students in critical roles with the "real" program office. Through the use of computer multimedia, the students can interact within this simulated program office, actually listening and watching people like the program manager brief on issues and problems. Moreover, the students can learn about Contract Performance Management (CPM) from the experts themselves — perhaps even a session about "earned value" management techniques from a prerecorded video clip of Gary Christle!

Further, they can do all of their research "on-line," researching through program documentation,

The Management Deliberation Center (formerly the Abilene Room) is being used by DSMC's Department of College Administra-

---

Lt. Col. (Sel.) Rego, USAF, is a professor of Contract Performance Management, DSMC. He is a graduate of PMC 92-1, DSMC.

DoD policy and guidance, and even the Air Force Acquisition Model or the soon-to-be-developed Joint Acquisition Modeling System. Finally, when they are ready to "test out," the students document all of their work on the computer for assessment by the instructor.

"Too far fetched," you say? Andersen Consulting is one of many commercial companies seeing the enormous return from this sort of training. As a result of its efforts to develop a multimedia simulation for its internal business practices training, Andersen Consulting reports a 40-percent reduction in training time, a payroll savings of about $2 million, and a training delivery savings of some $8 million a year for its 30,000 employees (*Byte Magazine*, Dec 1994).

Photo by Richard Mattox

tion and Services managers to brainstorm, share opinions, and solve problems in an anonymous setting.

Background

In August 1993, the Defense Acquisition University (DAU) directed DSMC to revise the current Contractor Performance Measurement Course (CPMC) into a new career Level I Contract Performance Management Fundamental Course (CPMFC). The University's direction also included the development of a career Level II Intermediate Contract Performance Management Course (ICPMC). Corresponding DAU catalog numbers for these courses are BFM102 and BFM203, respectively; both are mandatory courses in FY 96.

The differences between the new courses and the current CPMC are dramatic. Currently, CPMC is a survey, *knowledge-based* course, structured topically and oriented around the "what is done" in Contractor Performance Measurement. The new courses, however, are *competency-based* and intended to give students comprehension and application skills or the "how to do" in Contract Performance Management (CPM). How did we go from a Contractor Performance Measurement [Course] to a Contract Performance Management [Fundamental Course]? What is CPM, and how does it tie to the educational focus of these new courses?

Contract Performance Management (CPM)

What is a precise definition of CPM? An OSD Working Group defined it as follows:

The application of selected management practices, emphasizing *objective measurement of work accomplishment, i.e., "Earned Value" for evaluating progress toward delivery of an agreed-to product or service.*

This definition places the ingredients of CPM in the proper perspective:

- Objective Measurement of Work Accomplishment. Applying the concept of earned value in everyday management practices.
- Progress. Clear/adequate definition and control of plans (what/when/how), risk, performance and quality (managing *not* monitoring contract execution).
- Agreed. Basis of Work-in-Process or, in other words, the contract.

> *Imagine, if you can, the classroom of the future where* ***education is an interactive process of discovery*** *— a place where computers bring experiences and knowledge* ***to life*** *for students.*

- Product or Service. Metrics (hardware/software/support and service specifications).

Basically, CPM is relating integrated "earned value" management practices to selected subprocesses performed by all functions in the overall Defense Systems Acquisition Management process. The overall process is supported by resources from functional disciplines where training

requirements (content and throughput) are determined by DoD Functional Boards and the Defense Acquisition Career Managers within the designated career areas as follows:

- Acquisition Logistics
- Auditing
- Business, Cost Estimating and Financial Management (BCE&FM). (Note: Since CPM was aligned within the BCE&FM career field, the course numbers correspond with BFM102 and BFM203 in the DAU Catalog.)
- Communications—Computer Systems
- Contracting Management (CM)
- Industrial/Contract Property Management
- Manufacturing, Production and Quality Assurance
- Program Management (PM)
- Purchasing
- Systems Planning, Research, Development and Engineering (SE)
- Test and Evaluation

Specifically, CPM is an integrated management process knitting contracting or CM practices (i.e., Request for Proposal (RFP) preparation), the use of selected contract performance tools in PM practices (i.e., Cost/Schedule Control System Criteria (C/SCSC)), and other "functional practices" such as SE within the government program office. These practices reflect the progress of program execution, which is documented in formal acquisition reports and documents, and in formal briefing/reviews at selected acquisition decision milestones. No clearly established owner of the CPM process exists, unlike the "RFP process," which is owned by the contracting career field/function. The CPM process entirely supports other functional area formal processes.

Accordingly, DoD personnel assigned responsibility for CPM (i.e., project engineers) or performing CPM tasks are not necessarily BCE&FM personnel exclusively. However, BCE&FM personnel have historically provided this support to program managers and headquarters staff offices. They need to be trained in CPM to perform selected subprocess tasks (i.e., Statement of Work evaluations, Contractor Performance Review (CPR) analysis, RFP data calls, etc.). Also, CPM personnel advise leadership and other functional managers on the use of proper CPM practices (i.e., method for evaluation of the contractor's Integrated Management Systems, techniques for basis of programmatic decision alternatives in terms of cost/schedule/technical impacts).

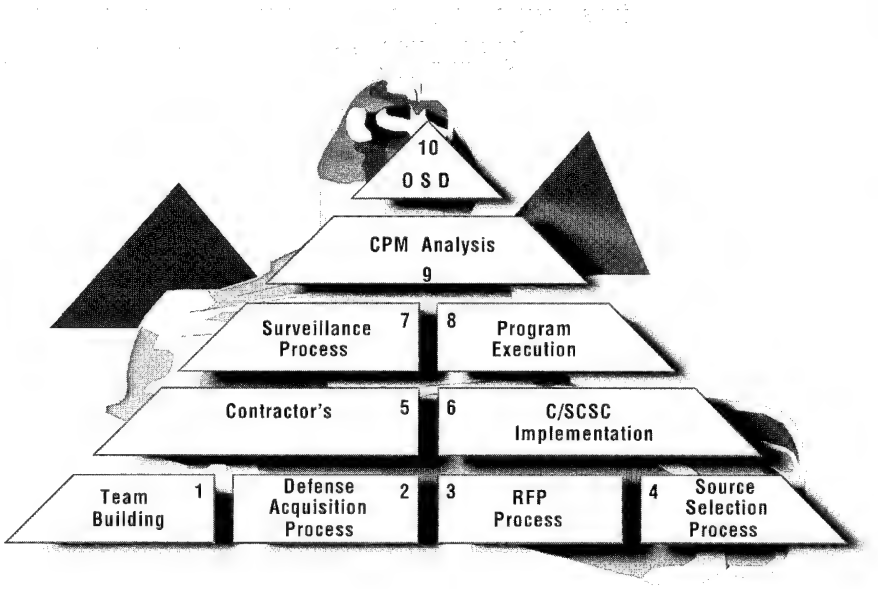
How do these new courses help in the transition from the narrow CPM perspective to the context of an integrated management process?

From CPM to Integrated Management

The DoD's BCE&FM Functional Board chartered a steering committee to perform a task analysis of the CPM activities across the DoD acquisition process. The committee's mission was to define mandatory training requirements that will be required under the Defense Acquisition Work Force Improvement Act (DAWIA). The BCE&FM Functional Board processed these requirements through the DAU, resulting in the formal direction for DSMC to develop DAWIA-mandatory career Level I and II courses. (At the time, titles of the courses were **CPM I** and **CPM II**, respectively.)

The DSMC response to the request for development of new CPM courses was an **integrated, progressive learning package** addressing the CPM role in the acquisition process. As designed, the courses move an individual in the CPM career path through increasing educational levels of understanding (Bloom's Taxonomy). The instruction package begins with lecture and an exercise approach in a mock program (CPM I or CPMFC), and moves to case studies and simulations of activities in a real program environment (CPM II or ICPMC). The simulated/real program exercises are situated in the Engineering/Manufacturing Development phase through the Production phase of the Defense Systems Acquisition Management process.

Each course stands alone; however, the demanding curriculum anticipates that before enrolling in the higher career-level course, the student will first fulfill the lower career-level requirement. This maximizes the effectiveness of the classroom experience with a minimal time investment. The series of courses — one at each career level — effectively eliminates



course prerequisite concerns within each career level. The BCE&FM Functional Board expects the first offering of CPMFC in FY 95, and ICPMC in FY 96. The design strategy identified below supports that goal.

Task Analysis Course Goals/ Objectives

The CPMFC and ICPMC courses provide skills at the Bloom's Taxonomy levels of—

- knowledge;
- comprehension;
- application; and
- analysis.

The goal of CPMFC and ICPMC is to provide an environment for learning the knowledge, skills and abilities consistent with Bloom's Taxonomy to meet the demands of a changing acquisition process and Office of the Secretary of Defense Contract Performance Management (OSD CPM) working group's stated requirements. The defense system acquisition process is an ever-changing mosaic of requirements, budgetary constraints, technological capabilities and political/strategic considerations. Ideally, the CPM curriculum development will result in a dynamic educational program that blends abstract concepts with real-world experience. Another goal is to introduce the student to the world of systems acquisition and prepare the student to function effectively within it.

The Task Analysis, presented to DSMC by the OSD CPM working group, contains 23 focus areas or duty responsibilities. In its directive, OSD requested specific achievement of a Bloom's Taxonomy level for all 23 duties in each course. Within these duties areas are 122 specific tasks required to be performed in order to satisfy the duty responsibilities. Accordingly, CPMFC and ICPMC develop the knowledge, skills and abilities required to perform the lowest task level that will result in achieving the desired Bloom's Taxonomy level established by OSD. Specific requirements follow:

1. CPM I or CPMFC: Bloom's Level or BL2, *"comprehension,"* for all duties except duty 1 at BL 1, and duties 18 and 23 at BL 3.

2. CPM II or ICPMC: BL 3, *"application,"* for all duties except duties 1 and 18 at BL 1 and 4, respectively.

CPMFC Course Description

The Contract Performance Management Fundamental Course (CPMFC) provides **knowledge-oriented instruction on the use of CPM** in the Defense Systems Acquisition Management process. The course applies a basic management theory approach to integrate CPM instruction into other acquisition systems management functional disciplines, such as Managerial Development (MD), Acquisition Policy (AP), Funds Management (FM), Contractor Finance (CF), Cost Estimating (CE), Contract Management (CM), Systems Engineering (SE), and Program Management (PM). Also, CPMFC introduces a variety of performance measurement tools employed in the management of DoD contracts and programs. Basic cost/schedule management concepts are identified in relationship to current DoD guidance. The course material fully examines core concepts of earned value and use of management tools such as the Cost/Schedule Control System Criteria (C/SCSC). Relating to tools of program management, the course explores implementation procedures used for C/SCSC on a contract and surveillance roles of the contract administration office and the Defense Contract Audit Agency.

Also, CPMFC provides the student with knowledge of how contractors develop and manage time-phased budget plans. Emphasis is placed on the primary financial reports used by the program management office with concentration on the Cost Performance Report and the Cost/Schedule Status Report. This instruction in Performance Measurement Baseline (PMB) management and financial reporting helps the student relate performance measurement data with DoD resource management. In addition, CPMFC identifies methods of analyzing performance data from these reports to obtain useful contract status and trend information and to forecast total contract estimated costs at completion. Cost/Schedule principles are highlighted in a capstone presentation by the Acquisition Program Integration Directorate, Office of the Under Secretary of Defense (Acquisition and Technology), of the analysis and use of performance data at the OSD level.

This course uses lectures/discussions supported by a case study, designed around the Defense Systems Acquisition Management process, to develop knowledge/ comprehension.

The CPMFC course focuses on individuals new to acquisition and performance management. It applies ba-

sic management concepts in a CPM structure to show the use and benefit of CPM to a program. In addition, CPMFC provides students the knowledge and comprehension of CPM policies; procedures and practices; and selected skills and abilities, such as basic CPR analysis, necessary to become a contributing member of a program office or support team.

CPMFC Course Outline

This course uses lectures/discussions supported by a case study, designed around the Defense Systems Acquisition Management process, to develop knowledge/comprehension. Throughout the curriculum, the student receives instruction on the fundamental and practical knowledge of CPM concepts required for comprehension of CPM processes. The student reinforces knowledge of CPM activities during practical exercises contained in the case study.

The following outline describes course blocks, nominally, 3.5 hours each. Blocks allow for a period of objective introduction, information/review, exercise and closure. Each session transitions to the next session to let the student compound the learning experience. The nominal breakouts of time for each block follow:

15 minutes .... Introduction, Objective, Methods
120 minutes .. Lecture, Discussion, Demonstration
60 minutes .... Practical Exercise (PE)
15 minutes .... Summary

Each Block uses a support package consisting of relevant supporting documentation (e.g., data item descriptions, DoD policies and procedures, etc.), a teaching note providing all relevant material, and practical exercise material.

ICPMC Course Description

The Intermediate Contract Performance Management Course (ICPMC) is an **applications-based course on the use of CPM** in the Defense Systems Acquisition Management process. The course integrates CPM activities into other acquisition functional disciplines such as managerial development, acquisition policy, funds management, contract management, systems engineering and program management. In addition, ICPMC allows the student to apply a variety of techniques employed in the management of DoD contracts and programs. Students demonstrate application of CPM concepts by applying current DoD practices in a **simulated Program Management Office** (PMO) environment. Students perform program analysis, formulate recommendations, and make decisions affecting the overall status of a program using the C/SCSC and "earned value" concepts. Students use current DoD guidance and procedures to simulate implementation of the C/SCSC on a contract, and emulate surveillance activities within the roles of the contract administration office and the Defense Contract Audit Agency.

Students demonstrate how CPM affects other acquisition documents such as the Acquisition Program Baseline; and program reporting requirements such as the Selected Acquisition Report and the Defense Acquisition Executive Summary report. Students also use PMB management concepts and financial reporting to relate performance measurement data with DoD resource management and the Program Planning and Budgeting System. In addition, ICPMC students analyze performance data from financial reports to obtain useful contract status and trend information and forecast total contract estimated costs at completion. The CPM principles are highlighted in a capstone presentation by a Defense Contract Management Command representative, Chair of the Performance Measurement Joint Executive Group, and a DoD industry guest speaker on the analysis and use of performance data at the OSD and contract management levels.

The ICPMC course provides individuals assigned CPM responsibilities the knowledge, skills and abilities to perform specialized CPM duties and tasks required in a PMO or staff support function.

ICPMC Course Outline

This course uses a major case study in the form of an automated simulation of a real acquisition program office designed around the Defense Systems Acquisition Management process. Because the course incorporates an application-based curriculum, the student is expected to have the fundamental and practical knowledge of CPM concepts obtained from attending the CPMFC Course. The course work prepares the student to apply CPM knowledge, skills and abilities as a team member through performance in practical exercises contained in the major case study.

The following outline describes course sessions of 3.5 hours each, and is structured to allow a period for introduction, information/review, exercise and closure. Each session, along with its accompanying student products, transitions to the next session and, with allowance for resets, allows the student to compound the learning experience.

15 minutes .... Introduction, Objective, Methods
30 minutes .... Lecture, Discussion, Demonstration
180 minutes .. Practical Exercise (PE)
15 minutes .... Summary

The ICPMC course engages the students in problem-solving situations to generate an ability to use ideas, concepts, principles and theories relative to CPM operations. The course draws on CPM knowledge, and through a controlled interactive exercise, students learn to apply the knowledge in new situations. As a result of the course, the student will be prepared to continue to new situations with minimal prompting or identification of appropriate CPM or C/SCSC DoD rules, policies and practices.

LETTER TO THE EDITOR

How refreshing it was for a logistician to read Ms. Ladymon's article covering Dr. Kaminski's speech to PMC 94-2 graduates.

In discussing investment strategy he said: "An important fact to remember is that 80 percent of system life-cycle costs are determined during the first 10 percent of the effort." Dr. Kaminski went on to identify the fourth key investment strategy element: *improve logistic support.* In the current budget environment, life-cycle costs will have great weight in our calculus of what to build. It is important to consider backend sustainment costs up front in the design of a new system.

Life-cycle costs — sustainment costs — isn't that what MIL STD 1388 was designed to cover? And doesn't acquisition reform consider MIL STDs a compilation of unnecessary, technically obsolete bureaucratic documents? And what incentive does a project manager have when the thrust in the 5000 series DoD and DAB Directives and milestone reviews is *cost, schedule and performance.*

The DOD 5000.1/.2 defines supportability as an integral part of performance. However, when a PM addresses performance, he/she only looks at the technical parameters of the system. This is a mindset that needs to be changed. Since supportability and sustainability have a direct impact on system performance in the field, it is absolutely crucial that the PM address support issues as part of performance. Only if this cultural change occurs, can DoD truly improve logistics support and reduce operating and support costs during system design as Dr. Kaminski suggests.

I am in complete agreement with the message in Dr. Kaminski's speech, but to attain his goal we need to:

- amend the 5000-series directives to include supportability/sustainability along with cost, schedule and performance;
- retrieve the baby (MIL STD 1388) that went out with the bath water, tweak it somewhat to take out "how to's" and make it *mandatory*; and
- rate PMs and PEOs on their treatment of life-cycle costs, supportability/ sustainability

Eric A. Orsini
Deputy Assistant Secretary of
the Army (Logistics)
OASA (I,L&E)

SOME HOMESPUN WISDOM ON RISK MANAGEMENT

"Never Bet More Than You Can Afford to Lose"

John Sweeney

The current idiom is *risk management* as contrasted to *risk aversion*, a heinous practice program managers have supposedly been practicing to avoid gambling on the future of their programs. The conventional wisdom is that through management of the risks, we can avoid the chance of failure. In a stochastic world, of course, there is no assured method of risk aversion.

Risk Assessment and Expected Value

The best statisticians could assure you is that they are 100 percent sure you will succeed at least none of the time; but that if you act prudently, you'll likely do better. For the theoretician, the answer lies in *risk assessment* and *expected value.*

The latest D.C. Lottery figures indicated a $2 million jackpot with the odds of winning being 7 million to 1. Over a long period play, then, one would expect to get back about $0.29 for every dollar invested — not much of an investment. The roulette wheel will return about $0.94 on the dollar; matching for coffee should return a whole dollar for each invested. But intelligent risk management requires that we search for the gamble that the return will significantly exceed the investment — for example, the investment in a new tool or process under the assumption that it will markedly reduce the cost of manufacture, generating higher profits. These, in turn, allow repayment of the investment and ultimately a higher profit.

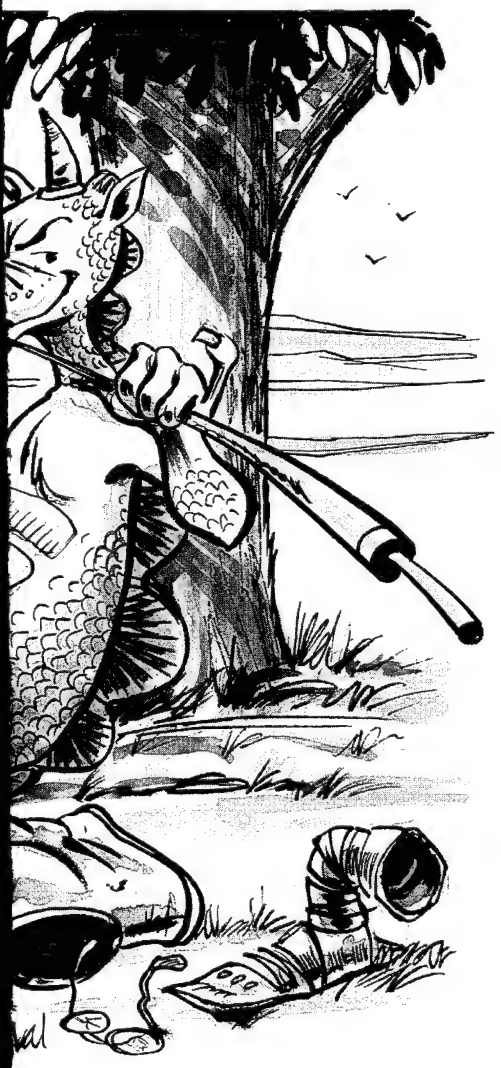
Expected value is replaced with terms like *expected payback period* or

---

Mr. Sweeney is the Acquisition Reform Manager with the VSS Division of Value Systems Engineering Corp. Formerly with the Naval Air Systems Command, he headed the Specifications and Standards Section as the new acquisition initiatives were being developed. He is a graduate of PMC 93-1.

expected return on investment. Always there, the key term is *expected.* There are no guarantees and, while not universally true, the larger the pot, the larger the risk. Still, base decisions on *expected value* and over the long haul, you'll likely win.

But there is more to it than just *expected value.* A key consideration is affordability. One hears the old saw, "Never bet more than you can afford to lose." Great wisdom abides in that statement. Another critical consideration is down-side consequences—what happens if you lose? For example, a bet that, at worst, results in lunch at McDonald's versus the Ritz-Carlton would be much easier to make than one that could result in the loss of your home.



Payoff vs. Culture

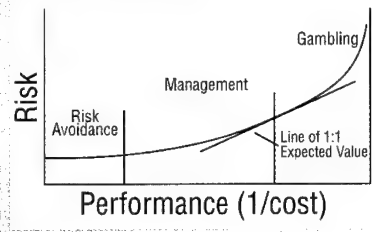
Another is expected payoff period. In the case of the D.C. Lottery, playing weekly for 100 years, one's chance of winning would only have increased to 1 in 2,000. The success of the Lottery, in part, is affordability. One can buy hope for only a dollar a week. A second factor is *culture.* If society honors gamblers, applauds their success, and more importantly, forgives their losses, the entrepreneurial actor is nurtured. Playing the lottery is the "in thing," and few are chastised for losing.

The Ultimate Rub

Therein lies the ultimate rub for the poor program managers. The feeling is that if they failed, they must not have *managed* their risks properly. We will applaud their successes; but should they fail, we will take their heads. Despite all our good intentions, *sometimes the dragon wins!*

Risk vs. Performance

Let us look at the idea of risk management in greater detail. The following diagram depicts the idea that one can potentially achieve much greater returns if he or she accepts some degree of risk. Generally, the greater the potential return, the greater the risk - the red/black bet on the roulette wheel as opposed to betting the 00.



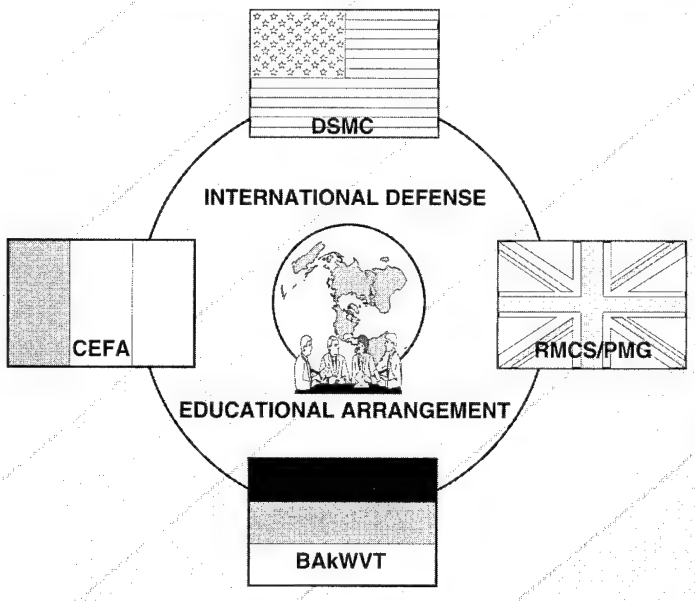
Both of these risks exist in the realm of the gambler. Over the long term, the investment is likely to exceed the returns. But for the instant bet, the gambler *could* win big. The line to the right depicts the limits of the physical world. Risk-avoiders, on the other hand, operate in the left-hand corner of the curve. They can't eliminate risk, but hesitate to go beyond the point where that risk increases because of their actions. In so doing, they have not realized the full capability that they could reasonably expect.

Risk managers work in the area of the curve where prudent management can provide an expected return from the increased risk that is greater than the likely cost; akin to getting 2 to 1 odds on a coin flip, or to investing in a machine that will return the investment over two contract periods, with five buys expected. A key role of managers here is to *understand* the risks being taken, to have every bit of data that they can gather, and to ensure that they operate well clear of the boundary that separates risk managers from gamblers. While the current environment brands *oversight* with the same brush as *risk avoidance,* risk managers must have insight into the performance of their programs, and have the flexibility to take effective management action, as required, to prevent prudent risk from becoming a gamble.

Certainly the current environment encourages this idea. Countless seminar hours are spent discussing the need for risk identification, evaluation and control. The avowed risk-avoider is clearly persona non grata. Notwithstanding, old habits die hard. And while the avowed risk-avoider might be shunned, the closet risk-avoiders abound; that's the way they were raised. And in their defense, we really haven't reached accommodation with the truth - that *the risk-takers sometimes lose, while the dragons sometimes win.* Our tendency is to blame the program manager for inadequate *risk management,* rather than accept reverses as a normal consequence of playing the game. Moreover, rarely is any consideration given in the budgeting process for indemnity funding to protect against these reverses. This clearly is a barrier.

All that as it may be, we need to go for that extra performance that is available out there in the risk manager's realm. We just can't afford the luxury of financing a project up to the level of certitude demanded by the risk-avoider and sacrificing the potential under the risk manager's portion of the curve.

INTERNATIONAL DEFENSE EDUCATIONAL ARRANGEMENT (IDEA) SEMINAR



JULY 10-14, 1995

Keynote Speaker

Dr. Paul G. Kaminski, Under Secretary of Defense (Acquisition and Technology)

TOPICS

- Cooperative Acquisition Practices: United States/United Kingdom/Germany/France
- National Policies on International Acquisition/Procurement
- International Program Managers: Government and Industry
- International Computer-aided Acquisition and Logistics Support (CALS)
- ISO Standards
- Army, Navy and Air Force International Programs
- International Agreements

The Rules Have Changed!

DSMC Alumni Association News!

DSMC Short Course Graduates Gain Full Membership Status!

GIVE A COPY OF THIS OFFER TO AN ASSOCIATE

The Rules Have Changed!

DSMC Alumni Association News!

DSMC Short Course Graduates Gain Full Membership Status!

GIVE A COPY OF THIS OFFER TO AN ASSOCIATE

The Rules Have Changed!

DSMC Alumni Association News!

DSMC Short Course Graduates Gain Full Membership Status!

GIVE A COPY OF THIS OFFER TO AN ASSOCIATE

The Rules Have Changed!

You have a new chance to join the DSMC Alumni Association!
Short course graduates gain full membership status!

The benefits of DSMC Alumni Association membership have increased. Graduates of all short courses are now eligible for full membership status. Take advantage of this new opportunity to join the DSMC Alumni Association today!

☐ 1 yr $20.00 ☐ 3 yr $50.00

Fill out this card and mail with a check to:

DSMC Alumni Association
7731 Tuckerman Lane, Suite 131
Potomac, MD 20854-3266

Name _____
Address _____
_____
Rank/Title/Service _____
Company/Agency _____
Course(s) Attended _____
Phone (H) _____
(W) _____ Fax _____

For information call: (301) 309-9125, (800) 755-8805, Fax (301) 309-0817 E-Mail: dsmcaa@dsmc.dsm.mil

The Rules Have Changed!

You have a new chance to join the DSMC Alumni Association!
Short course graduates gain full membership status!

The benefits of DSMC Alumni Association membership have increased. Graduates of all short courses are now eligible for full membership status. Take advantage of this new opportunity to join the DSMC Alumni Association today!

☐ 1 yr $20.00 ☐ 3 yr $50.00

Fill out this card and mail with a check to:

DSMC Alumni Association
7731 Tuckerman Lane, Suite 131
Potomac, MD 20854-3266

Name _____
Address _____
_____
Rank/Title/Service _____
Company/Agency _____
Course(s) Attended _____
Phone (H) _____
(W) _____ Fax _____

For information call: (301) 309-9125, (800) 755-8805, Fax (301) 309-0817 E-Mail: dsmcaa@dsmc.dsm.mil

The Rules Have Changed!

You have a new chance to join the DSMC Alumni Association!
Short course graduates gain full membership status!

The benefits of DSMC Alumni Association membership have increased. Graduates of all short courses are now eligible for full membership status. Take advantage of this new opportunity to join the DSMC Alumni Association today!

☐ 1 yr $20.00 ☐ 3 yr $50.00

Fill out this card and mail with a check to:

DSMC Alumni Association
7731 Tuckerman Lane, Suite 131
Potomac, MD 20854-3266

Name _____
Address _____
_____
Rank/Title/Service _____
Company/Agency _____
Course(s) Attended _____
Phone (H) _____
(W) _____ Fax _____

For information call: (301) 309-9125, (800) 755-8805, Fax (301) 309-0817 E-Mail: dsmcaa@dsmc.dsm.mil

The Rules Have Changed!

DSMC Alumni Association News!

DSMC Short Course Graduates Gain Full Membership Status!

GIVE A COPY OF THIS OFFER TO AN ASSOCIATE

The Rules Have Changed!

DSMC Alumni Association News!

DSMC Short Course Graduates Gain Full Membership Status!

GIVE A COPY OF THIS OFFER TO AN ASSOCIATE

The Rules Have Changed!

DSMC Alumni Association News!

DSMC Short Course Graduates Gain Full Membership Status!

GIVE A COPY OF THIS OFFER TO AN ASSOCIATE

The Rules Have Changed!

You have a new chance to join the DSMC Alumni Association!
Short course graduates gain full membership status!

The benefits of DSMC Alumni Association membership have increased. Graduates of all short courses are now eligible for full membership status. Take advantage of this new opportunity to join the DSMC Alumni Association today!

☐ 1 yr $20.00 ☐ 3 yr $50.00

Fill out this card and mail with a check to:

DSMC Alumni Association
7731 Tuckerman Lane, Suite 131
Potomac, MD 20854-3266

Name _____
Address _____
_____
Rank/Title/Service _____
Company/Agency _____
Course(s) Attended _____
Phone (H) _____
(W) _____ Fax _____

For information call: (301) 309-9125, (800) 755-8805, Fax (301) 309-0817 E-Mail: dsmcaa@dsmc.dsm.mil

The Rules Have Changed!

You have a new chance to join the DSMC Alumni Association!
Short course graduates gain full membership status!

The benefits of DSMC Alumni Association membership have increased. Graduates of all short courses are now eligible for full membership status. Take advantage of this new opportunity to join the DSMC Alumni Association today!

☐ 1 yr $20.00 ☐ 3 yr $50.00

Fill out this card and mail with a check to:

DSMC Alumni Association
7731 Tuckerman Lane, Suite 131
Potomac, MD 20854-3266

Name _____
Address _____
_____
Rank/Title/Service _____
Company/Agency _____
Course(s) Attended _____
Phone (H) _____
(W) _____ Fax _____

For information call: (301) 309-9125, (800) 755-8805, Fax (301) 309-0817 E-Mail: dsmcaa@dsmc.dsm.mil

The Rules Have Changed!

You have a new chance to join the DSMC Alumni Association!
Short course graduates gain full membership status!

The benefits of DSMC Alumni Association membership have increased. Graduates of all short courses are now eligible for full membership status. Take advantage of this new opportunity to join the DSMC Alumni Association today!

☐ 1 yr $20.00 ☐ 3 yr $50.00

Fill out this card and mail with a check to:

DSMC Alumni Association
7731 Tuckerman Lane, Suite 131
Potomac, MD 20854-3266

Name _____
Address _____
_____
Rank/Title/Service _____
Company/Agency _____
Course(s) Attended _____
Phone (H) _____
(W) _____ Fax _____

For information call: (301) 309-9125, (800) 755-8805, Fax (301) 309-0817 E-Mail: dsmcaa@dsmc.dsm.mil

DSMC TO HOST IDEA SEMINAR

The International Defense Educational Arrangement (IDEA) Seminar focuses on international acquisition practices and cooperative programs. Specifically, the seminar is an arrangement between defense acquisition educational institutions in the United States, United Kingdom, Germany and France.

Those eligible to attend are Defense Department/Ministry and defense industry employees from the four IDEA nations who are actively engaged in international defense acquisition programs. Other nations may participate by invitation.

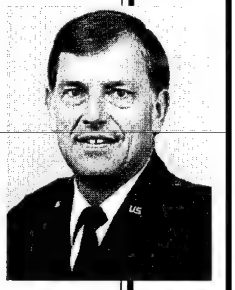
This year the seminar will be held July 10-14, 1995, at the Defense Systems Management College, Fort Belvoir, VA 22060-5565 (near Washington, D.C.). July 14 will be an optional day for those interested in the educational aspects of international acquisition.

The IDEA Seminar is by invitation only. Those U.S. DoD personnel receiving an invitation should submit an approved DD Form 1556 by telefax. Industry representatives should submit letterhead requests by telefax. Invitations and confirmations will be issued after May 1, 1995.

For more information, contact:
Prof. Richard Kwatnoski
Director
International Acquisition Courses
Comm: (703) 805-3064/3063
DSN: 655-3064
Telefax: (703) 805-3187

Inside DSMC

Col. Andrew A. Zaleski II retired from the U.S. Air Force effective 30 June 1995. Andy served as Dean, Academic Programs Division; and Executive Director, Executive and Short Courses Division, since August 1991. His retirement culminates a 30-year career with the U.S. Air Force, including previous assignments in partnership with industry (Hughes Aircraft Company and McDonnell Douglas Astronautics Company); Strategic Air Fommand; Air Force B-1 Bomber Program; Base Commander, Hanscom Air Force Base, Mass.; Electronic Systems Command; and Air Force Systems Command. At this time, his retirement plans are indefinite.



Maj. Linda Puhek retired from the U.S. Air Force effective 1 July 1995. Linda came to the College in June 1991, and served as Special Assistant to the Director, Program Management Education Division. In March 1993, she was chosen as Executive Officer to the Commandant, and served in that capacity from March 1993 to July 1995. Her retirement culminates a 16-year career with the Air Force. Linda plans to remain in the local area and spend more time with her three children, as well as pursue her personal interests in golf and running.

Industry and the International Test and Evaluation Association (ITEA) Crosstalk Symposium

The George Washington (GW) Chapter of ITEA is sponsoring a 1½-day symposium beginning in the a.m., July 18, 1995, at the Sheraton Crystal City, in Arlington, Virginia. Industry representatives will participate in panel discussions of goals, processes, experiences, problems and suggestions relative to their product test and evaluation. Following each panel discussion, a select panel of test and evaluation executives from DoD and other government agencies will initiate dialogue with panel members to further explore test and evaluation concepts of mutual benefit. Questions from the audience will be entertained.

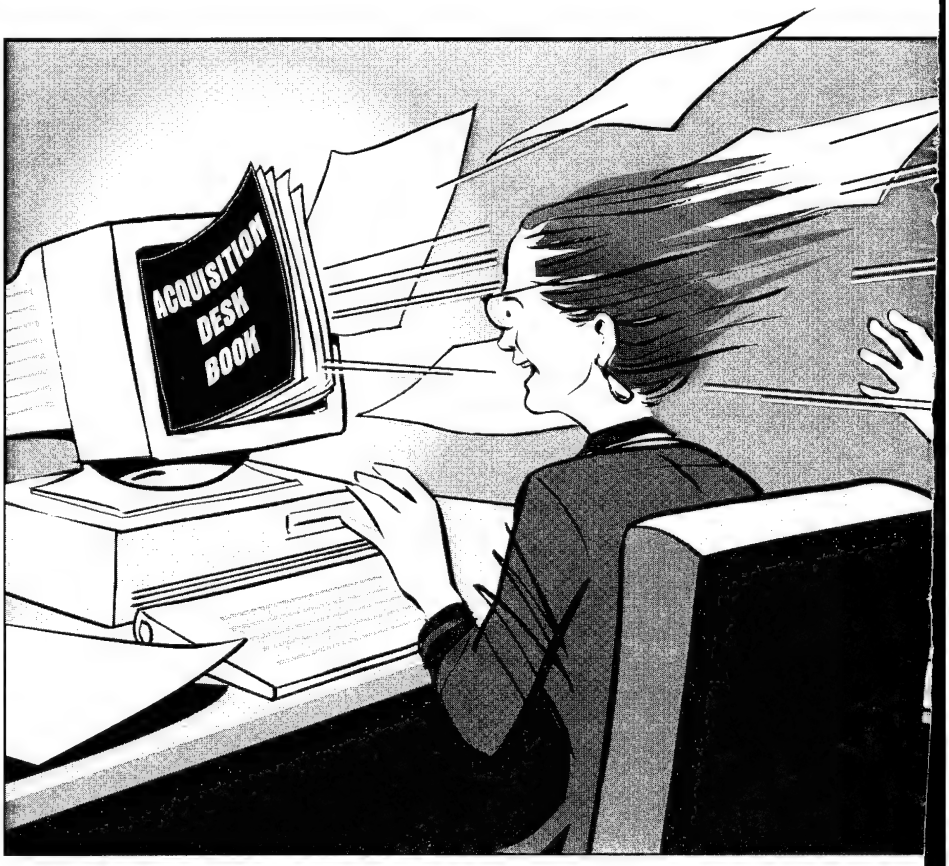
The cost for ITEA members and members of government is $175. For non-ITEA members, the cost is $215. (Membership in ITEA costs $40.) Cost includes continental breakfasts, refreshments during breaks, and the ITEA-GW Chapter luncheon on 18 July. Mr. John Burt, OUSD(A&T), DTSE&E, is the symposium host and overall chair. Honorable Philip Coyle, DOT&E, will be the luncheon speaker. For further information, contact Dr. Vernon Shirley, MATRIX Corporation, (703) 893-1212 (Voice) or (703) 356-6578 (Telefax).

AAI PAT INTRODUCES THE ACQUISITION DESKBOOK

Automated Acquisition Information Process Action Team Wraps Up Session at DSMC

Frances M. Valore

On April 17, 1995, the Automated Acquisition Information (AAI) Process Action Team (PAT) briefed Dr. Paul G. Kaminski, Under Secretary of Defense for Acquisition and Technology (USD[A&T]), and the Service Acquisition Executives (SAE) on their recommendations to develop a DoD Acquisition Deskbook and Automated Program Status Reporting system. Dr. Kaminski and the SAEs unanimously endorsed both recommendations.[1]



The Beginning

In early January, under the sponsorship of the Deputy Under Secretary of Defense for Acquisition Reform, representatives from the Air Force and Navy briefed Dr. Kaminski and the SAEs on two ongoing efforts designed to improve the effectiveness of our acquisition workforce — the Air Force Acquisition Model (AFAM) and the Joint Acquisition Management System. Discussion among the Acquisition Executives (AE) quickly expanded beyond the two specific programs, focusing instead on the broader need to apply automated information technology to the Department's acquisition processes. As an outcome of this meeting, Dr. Kaminski chartered the AAI PAT to "define a vision and build a roadmap to institutionalize an automated acquisition information process to provide current and comprehensive information...to effectively and efficiently buy weapon systems." One week later, beginning 17 January, the AAI PAT convened at the Defense Systems Management College (DSMC).

Vision and Goals

The AAI PAT began with a decidedly program management and weapon systems orientation, but as the opportunities for application of automated acquisition information technology became apparent, the team expanded their focus to include the entire acquisition workforce (e.g., personnel involved in procurement; logistics; program management; sci-

Ms. Valore is the Associate Dean of Information, Research, Consulting and Information Division, DSMC.

ence and technology; engineering; finance). We settled on the following vision:

Institutionalize an automated acquisition information process to provide current, appropriate and meaningful information and tools for the Office of the Secretary of Defense (OSD), Services, Defense Agencies and Acquisition Managers to effectively and efficiently acquire products, systems and services.

To realize this vision, four specific end-state descriptions or outcome goals were developed.

Goal 1: An automated acquisition information process will exist that provides timely and effective information sharing.

Goal 2: A streamlined automated tracking, monitoring and reporting information process, integrated with program management planning and execution tools, will be in-place and operating.

Goal 3: A library of automated acquisition tools and information will exist and be accessible to all.

Goal 4: Training and support on AAI systems will be fully institutionalized.

As we were defining our goals, we met with representatives from various groups involved in setting requirements and building automated systems designed to support acquisition managers. Following our discovery process, we began development of a plan of action to realize our goals.

The Deskbook, as envisioned by the AAI PAT, will be an integrated electronic desktop system for the exchange of information to support the acquisition community.

During this process, our strategy coalesced into two system or process recommendations: the creation of an Acquisition Deskbook system, and the development of an Automated Program Status Reporting system.

The Acquisition Deskbook

The Deskbook, as envisioned by the AAI PAT, will be an integrated electronic desktop system for the exchange of information to support the acquisition community. Specifically, the Deskbook will provide timely access to complete, relevant information, and will be structured to advance managerial discretion. Its concepts incorporate dramatic changes, not only in the means by which acquisition professionals receive reference information to make informed decisions, but in changes to the way we view business decision options.

By nurturing these changes in the Deskbook concept, we anticipate the capability to provide acquisition professionals with current and complete information at their fingertips, presented in a configuration corresponding to thinking processes. To reach a large and diversified audience of acquisition professionals, the Deskbook will be an integrated software application that can be used as a stand-alone installation, on a network, or accessed remotely via the Internet, World-Wide-Web, or dial-up modem.

Overall, the Deskbook concept will use available technology to encourage new ways of managing acquisition business. Its opportunities are far-reaching and will directly impact several acquisition management areas: improve access to current direction and alternative practices; enhance decision making; facilitate communication horizontally and vertically across the acquisition community; and reduce cost of publishing acquisition directives. The initial release of the Deskbook phase could be as early as December 1995.

Ultimately, the AAI PAT expects the Deskbook, as envisioned by Dr. Kaminski, to indeed "change the way we conduct business within the DoD." Integral to the composition of the Deskbook are three separate, integrated components that address unique information needs of the acquisition community: the Reference Set, the Tool Catalog, and the Acquisition Management Forum (AM Forum).

Photos by Richard Mattox

It's "THUMBS UP" for the Acquisition Deskbook following a Decision Brief on 17 April 1995. According to Dr. Paul G. Kaminski, Under Secretary of Defense (Acquisition and Technology), "With successful implementation, acquisition reform should change the way we conduct business within DoD." The Acquisition Deskbook, as designed, will be an enabling technology for a new way of doing business in the area of Automated Acquisition Information. From left: Lt. Col. Chris Feudo, USA, DSMC; Honorable Colleen Preston, Deputy Under Secretary of Defense (Acquisition Reform); Honorable Paul G. Kaminski, Under Secretary of Defense (Acquisition and Technology); Honorable R. Noel Longuemare, Principal Deputy Under Secretary of Defense (Acquisition and Technology); and Ms. Frances M. Valore, DSMC.

The Reference Set

The critical component of the Deskbook is the Reference Set — a structured set of information that provides all applicable mandatory and discretionary information relating to acquisition within the Department of Defense, including Service, Agency, and buying activity-specific information.

Reengineering the Information. The Reference Set will provide the technological tool to support a basic change in the acquisition culture. "Our acquisition reform implementation efforts will be focused upon modifying traditional individual and organizational behaviors. We are shifting from an environment of regulation and enforcement to one of incentivized performance. To make the system truly responsive, we must "un-learn" some of the accumulated collective behaviors we have "learned" over the years. My goal is to create a climate of reasoned, well informed risk-taking by our program executive officers and system program directors.

With successful implementation, acquisition reform should change the way we conduct business within the Department. We are moving away from a pattern of hierarchical decision making to a process where decisions are made across organizational structures by integrated product teams. It means we are breaking down institutional barriers. It also means that our senior acquisition staffs are in a receive mode — not just a transmit mode. The objective is to be receptive to ideas from the field to obtain buy-in and lasting change. I expect to see more use of "pilot-like" mechanisms as agents of change. There is lots of flexibility in the 5000-series directives. The issue is to incentivize change away from a "one-size-fits-all" classical mold."[2]

The PAT believes a major step in changing the acquisition culture can be achieved by carefully restructuring our acquisition information contained in today's directives, instructions and regulations. By restructuring the instructions senior management sends to the workforce, we can facilitate a cultural transition from risk avoidance through rigid conformity to regulations, to a climate that promotes the reasoned use of judgment and well informed risk-taking. After careful consideration, the team recommended acquisition information be organized in the Reference Set in the following three categories:

- **Guiding Principles**: These are the true tenets that guide our acquisition process and our mandatory op-

erating procedures. This information describes the products and processes the acquisition community *must* produce and follow.

- **Institutionalized Knowledge**: This is the bulk of our accumulated knowledge; it represents alternative practices that have been used before and may be used again. This information describes the products and processes the acquisition community *may* choose to produce and follow.

- **Sage Information**: This set of information describes advice from functional experts, lessons learned from past experience, and results and status from ongoing "pilot" efforts.

By organizing the Reference Set information into these categories, the Deskbook will send a clear message that the use of discretion and judgment are mainstream elements of our business process. Our rule-book should not be interpreted as a rigid tome that must be followed, but instead should be used as a guide to assist our acquisition mangers exercise their judgment. The process of revising the 5000 principal acquisition documents — DoDD 5000.1, DoDI 5000.2 and DoDI 5000.2M — for inclusion in the Reference Set has already begun by a select team assembled from OSD and the Services.

To assure the unique needs of each Service and Defense Agency are addressed, the information to be included in the Reference Set will be further sub-divided into three Classes:

Class 1: DoD-wide: This class applies throughout the Department of Defense. The Defense Acquisition Executive (DAE) will establish a process to certify, categorize and approve the information to be included in this class. The ongoing revision to the principal 5000-series documents is the initial step toward the development of this process.

The Deskbook can be envisioned as a living tree trunk that encompasses the combined knowledge of the acquisition community.

Class 2: Service/Agency-wide: This class applies throughout the applicable Service or Agency (e.g., U.S. Air Force, Defense Logistics Agency, Special Operations Command). The SAE or Agency senior acquisition official will establish a process to certify, categorize and approve the information to be included in this class.

Class 3: Buying-activity Specific: This class applies throughout the applicable buying activity (e.g., Electronic Systems Center [ESC], Naval Air Systems Command [NAVAIR], Tank Automotive and Armaments Command [TACOM]). The buying activity's senior acquisition official will establish a process to certify, categorize and approve the information to be included in this class.

Developing the Information Process. The Deskbook can be envisioned as a living tree trunk that encompasses the combined knowledge of the acquisition community. Up through the roots flow the nutrients (practical experience) from the Services and Agencies in the form of local operating instructions and lessons learned. The leaves absorb the sunlight (senior management direction) from OSD, the Administration, and Congress in the form of guidance and fundamental principles. In the center, the information comes together in the

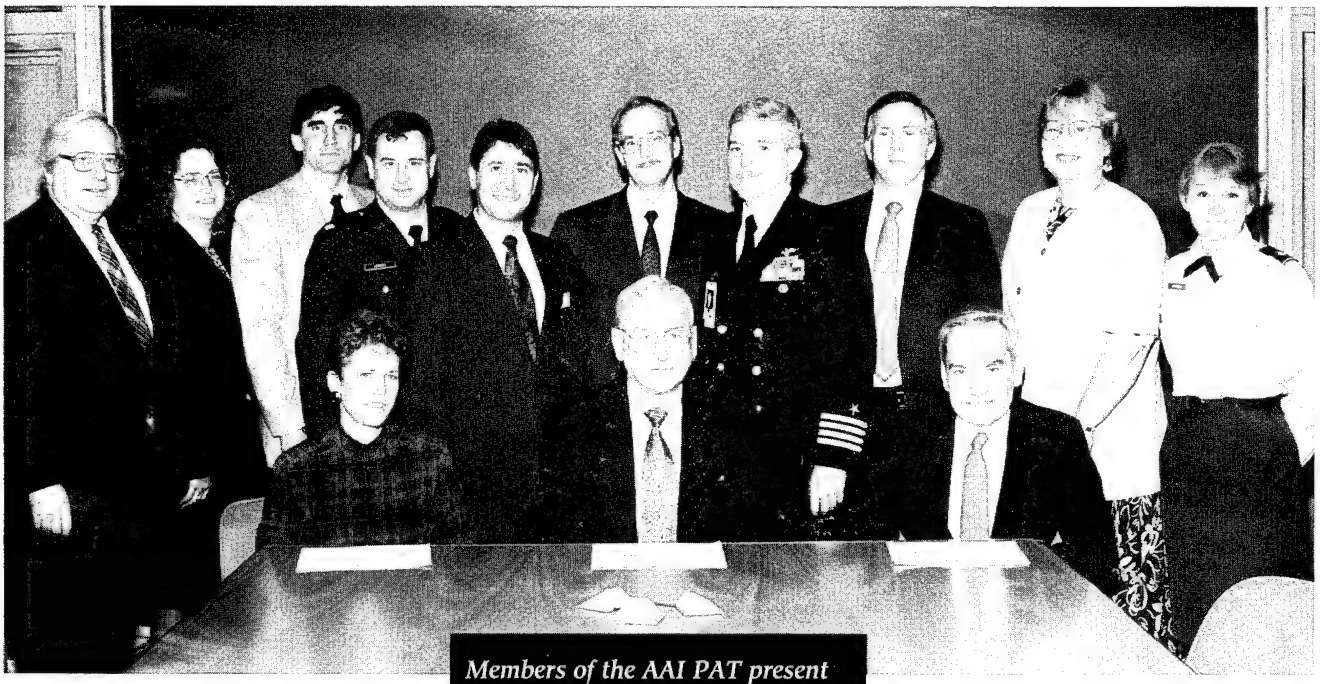
ACQUISITION MANAGERS BENEFIT FROM REINVENTING GOVERNMENT (REGO)

Numerous official and unofficial studies and reports have documented that acquisition managers need valid, accurate and timely information to avoid "surprises," often in the form of unexpected project cost increases and schedule slippages. Historically, the bureaucratic response was to develop a new "rule" to prevent that specific reoccurrence. Unfortunately, these rules are perceived as inviolate and inflexible and, as such, become a substitute for thoughtful judgment and decisive action.

Managerial expertise and judgment have always been, and continue to be, critical to successful program management. In the politically charged defense arena, this is especially true. No amount of organized, systematic "checklists" can substitute for the valuable art of decision making based on cumulative management expertise, thoughtful analysis of a situation, and finally, the courage to make a judgment call in a risk-filled environment.

The current environment, within which REGO (REinventing GOvernment) is encouraged at the highest levels, brings opportunities to re-insert a heightened awareness of the managerial discretion available to government careerists. Accordingly, the AAI PAT structured the information flow processes in ways that promote this awareness and enable acquisition professionals to make informed decisions. Toward this end, our team directed considerable attention to the organization of Deskbook information so that users could more easily distinguish between that which is Public Law or Directive, and that which is Discretionary.

Yes, the technology exists *today* to place current policy, guidance and automated tools for program management at the fingertips of every acquisition professional. Thus, the Reinventing Government philosophy, coupled with available and emerging technology, offers chances to make *real* and *enduring* differences. The political and economic climate encourages, if not forces, creative solutions while the Department braves significant redefinition of its roles.



Members of the AAI PAT present their final report to OSD's senior acquisition officials. From left: Herman Tarnow, HQ AMC; Leslye Hughes, DISA; Neil Nelson, SARDA; Lt. Col. Dave London, USAF, AFAM PO; Lt. Col. Chris Feudo, USA, DSMC; Cray Henry, DUSD(AR); Capt. Tom Davis, USN, PAT Leader — NAVAIR PMA-250; Robert Leach, DUSD(A&T)-API/PM; Frances Valore, DSMC; Col. (Sel.) Pat Bayless, USAF, DCMC. Seated from left: Honorable Colleen Preston, DUSD(AR); Honorable Paul G. Kaminski, USD(A&T); Honorable R. Noel Longuemare, Principal DUSD(A&T). (Members of the AAI PAT not pictured are Col. Mike Ferrell, USAF, AFAM PO; Capt. Mark Wessman, USN, NAVSEA 04.)

Reference Set. Like a tree, a set of processes are needed to control the flow of nutrients and energy. The Reference Set requires one set of processes to identify, collect and certify the information, and another set of processes to manage the development and operation of the Reference Set tool. The AAI PAT recommended that each Acquisition executive establish an identification, collection and certification process and identify a full time Deskbook information coordinator. The AAI PAT also recommended the establishment of a Joint Program office.

The Joint Functional Team. The information collection and certification processes offer opportunities for a "Joint" look across all Services and Agencies, to review other Components' Guiding Principles and Institutional Knowledge for potential application across all the Components. Accordingly, the Reference Set Information Coordinators from each of the Component review boards will form a JFT. Specifically, this Team will coordinate potential joint Guiding Principles and Institutional Knowledge, and present their recommendations to a Joint Service Review Board for endorsement across the Components.

The JFT will work with the Deskbook Joint Program Office (JPO) to establish the "views" into the information. Because the Deskbook will contain a tremendous quantity of data, the available methods for the acquisition workforce to view that information are critical. Only if the information is readily accessible will the Deskbook become the reference source of choice for the acquisition workforce.

In addition, the JFT will approve requirements and perform oversight functions for the DoD Acquisition Deskbook. While sufficiently recognizing the importance of maintaining Service/Agency-unique requirements, the JFT management structure simultaneously ensures a DoD-wide vision for automated acquisition information. Each AE will be responsible for establishing internal processes to identify and approve information for incorporation into the Deskbook. Of particular importance is the need to assure the validity of the information. Different process requirements are applicable to each category of information. The process action team recommended the following process guidelines:

- The **Guiding Principles** information has the greatest effect on the practice of acquisition, and the certification process should have high-level review and coordination. However, information in this category should change infrequently. The relevant AE is the appropriate certification official.

- The **Institutionalized Knowledge** category provides approved alter-

native practices. Certification should be delegated to appropriate process owners within the Component or Department.

- The **Sage Information** category collects and promulgates promising ideas, lessons learned and advice throughout the Department. The certification process should be delegated to the lowest possible level. A lengthy and top-heavy review process for the Sage Information category would be counter-productive.

To ensure the Deskbook maintains a DoD perspective, the JFT will be chartered to recommend DAE approval of alternative practices and "good ideas" that cross Component lines. Also, they will be explicitly tasked to seek out those practices and policies introduced at the Component level that may be appropriate for Joint implementation. Members will represent their respective Components on the JFT, and serve as their Component's advocate for the Deskbook. As such, members will be drawn from the ranks of senior-level representatives (O-6 or GM-15), assigned from each of the following organizations:

- Director, Acquisition Program Integration — Chairperson
- Deputy Under Secretary of Defense (Acquisition Reform)
- Army
- Navy
- Air Force
- Marine Corps
- Defense Logistics Agency
- Special Operations Command
- Deskbook Program Manager — Technical Consultant
- Defense Systems Management College, Executive Secretariat and Host

Deskbook Joint Program Office. To develop and operate the Reference Set, the Process Action Team recommended the establishment of a Deskbook JPO, taking advantage of the existing AFAM program office infrastructure and experience. The Deskbook JPO will manage the overall Deskbook System — the Reference Set, Tool Catalog and AM Forum. The Deskbook program office will be formed around the existing AFAM program office, supplemented with support from the Army and Navy. The program manager will rotate through the Services every 3 years.

The Tool Catalog

The Tool Catalog is a database of software acquisition tools, currently available or under development, describing the functional capability, systems compatibility, and a point of contact for each individual tool. Its purpose is to provide a central library and referral service on automated tools for acquisition managers.

What drives the need for the Tool Catalog? In today's environment, acquisition managers are isolated. This isolation creates multiple small markets where it is often easier and faster to develop specialized automated tools rather than investigate the availability of existing tools in other isolated markets.

Today's environment leads to widespread proliferation and duplication. As currently structured, the process begins with identification of a need for a particular software tool by a single acquisition manager or a small group of managers. They then develop the needed tool, or an enterprising commercial company sells them a specialized existing tool. This process is repeated in isolation throughout the acquisition community. Because individual acquisition managers do not have the information available to determine whether a software tool already exists, duplication in development proliferates. The Tool Catalog is intended to reduce such duplication by providing the following specific information to acquisition managers:

- tool functional classification;
- functional description;
- assessment of capability;
- software and hardware compatibility;

THE DESKBOOK AT A GLANCE — CHANGING A CULTURE

...Envision a near future that endorses application of emerging technology, creative thinking, and rewards pro-active decision making...

— Frances Valore

Problem 1: *Dissemination of Acquisition policy and approved practices can take weeks or even months to reach the members of the acquisition workforce. Also, no fast path exists to share "good ideas" across the Components.*

Goal 1: An automated acquisition information process will exist that provides timely and effective sharing of information.

Problem 2: *Acquisition managers spend significant time and resources to generate oversight reports. Responsible decision makers do not always have access to the most current information.*

Goal 2: A streamlined, automated tracking, monitoring and reporting information process, which integrates with program management planning and execution tools, will be in-place and operating.

Problem 3: *There is no centralized list of acquisition management tools. No procedure exists by which acquisition managers can investigate the existence of a software tool to meet their needs before developing their own. As a result, acquisition managers devote a significant amount of time and money each year developing automated tools that already exist.*

Goal 3: A "library" (e.g., inventory, index, catalog) of automated acquisition tools and information will exist and be accessible to all.

Problem 4: *Acquisition workforce training does not adequately use the many tools available in the normal curriculum. Existing tools are not widely publicized to the acquisition workforce.*

Goal 4: Training and support on AAI systems will be fully institutionalized.

Note: The Deskbook recommendation addresses Problems 1 through 4 and Goals No. 1, 3 and 4. The APSR System recommendation addresses Goal No. 2.

- implementation/support cost;
- identification of current users;
- tool owner and acquisition source;
- contract vehicles, if any; and
- date of last upgrade.

Acquisition tools will be classified functionally in the following categories to better serve the acquisition community:

- industrial/manufacturing/quality assurance;
- reference;
- program management;
- financial management;
- contract management;
- engineering;
- configuration control;
- test and evaluation;
- logistics;
- foreign military sales;
- safety;
- security;
- environmental;
- installation management;
- construction management;
- human systems integration; and
- others, when identified.

In addition to the cataloging function, as users consult the Tool Catalog service, the Deskbook will collect trend information on the automated tool needs of acquisition managers. This information can then be analyzed and provided to the senior management in support of funding requests to develop or enhance needed automated tools. The Process Action Team recommended NAVAIR PMA-250 manage the Tool Catalog.

The Acquisition Management Forum

The AM Forum is an unstructured and informal electronic information exchange to facilitate the rapid flow of good ideas and information throughout the acquisition community. As envisioned by the AAI PAT, the Forum will give acquisition professionals an electronic "one-stop communications center" that provides quick and easy access to other Acquisition professionals. As a means of exchanging information, the Forum offers timely, informal advice, ideas and consultation, and could foster teaming opportunities with others working on similar projects, questions, concerns or initiatives.

The AM Forum organizational functions will include information collecting, screening, directing and disseminating, but will not include certification or approval functions. Our team believes the key to leading a Forum that people want to use, has more to do with the people and the information they find there than with sophisticated graphics or quick connections. The intent is not to see warm, fuzzy, sanitized and approved information, but rather to encourage open discussion, a gloves-off exchange of ideas, and rapid communication among multiple DoD community users. To reach the largest possible audience of acquisition professionals, the AM Forum will be available via Internet, telefax and telephone message 24 hours a day, and staffed during normal duty hours.

The DSMC will establish and manage the AM Forum and use the Forum to support the Defense Acquisition University (DAU) in the planning and distribution of publicity and training to support the Deskbook system. The following items (by no means all-inclusive) suggest the content of a typical Forum:

- pilot programs status;
- acquisition reform initiatives;
- new ideas, proposed alternative practices;
- distance learning applications;
- open discussion and feedback;
- notices — course offerings, conferences, seminars; and
- new or emerging policy.

An AM Forum central focal point will facilitate the exchange of top-down, bottom-up and horizontal information that is consistent, valid, accurate and timely. External interface and coordination will consist of legislation, executive actions or hot news, while internal interface and coordination will originate from OSD, the Services and Agencies. The AM Forum will coordinate and facilitate several types of information: survey findings; concerns and current issues; expert functional responses to queries; real-time status of pending legislation; Planning, Programming and Budgeting System updates (committee mark-ups, etc.); and other items of interest, as indicated by users/customers.

Training And Education

The DAU will coordinate the training and education requirements to ensure the Deskbook concept is institutionalized. The projected target date for full integration of the Deskbook into the applicable DAU consortium curriculum is Mar 96.

The DAU, upon determination of need for new courses or additions to existing courses, will coordinate the development of all training and education functions for the Deskbook, targeting applicable courses at all levels. The core competencies for Deskbook instruction should include an appropriate emphasis on the underlying philosophy of the Deskbook as an enabling technology to disseminate information on a "new way of doing business."

The Defense Acquisition Corps Functional Boards will determine the need to develop new competencies or revise their respective functional competencies accordingly. As necessary, the Boards will also task the DAU to develop or revise applicable course curricula.

The Automated Program Status Reporting (APSR) System

The overall acquisition information process will take advantage of emerging technology, to further an evolving acquisition culture of good business practices. Thus, as a team we ad-

dressed Goal No. 2 in response to Dr. Kaminski's direction — a streamlined automated tracking, monitoring and reporting information process, integrated with program management planning and execution tools, in-place and operating.

The AAI PAT recommended the development of an APSR System to automate the continuous process of evaluating program execution between decision points. As a first step, we recommended that a critical action team be chartered with the express purpose of defining the information required for oversight and to develop a corresponding data dictionary. The critical element in developing and automating a new oversight process is the agreement on what information is needed to maintain program insight balanced with the cost of providing that information.

Current methods of oversight reporting tend to require the creation of information purely for the purpose of reporting. The APSR approach should maximize the use of existing information used to manage programs rather than require the generation of new oversight-specific information. The resulting data dictionary documenting the information agreement could then be used as the foundation for development of a distributed database supporting the information needs of our senior decision makers and our integrated product teams. Ultimately, this system should replace other forms of oversight reporting, and provide timely and accurate information, while reducing costs associated with duplicated program management efforts.

The AAI PAT recommended the Army be appointed the EA to establish and manage the development of the APSR system, and coordinate appropriate APSR actions with the Systems Acquisition Management Corporate Information Management (SAM-CIM) effort to achieve consistency and efficiencies.

The critical element in developing and automating a new oversight process is the agreement on what information is needed to maintain program insight balanced with the cost of providing that information.

On a Personal Note

The Deskbook product and associated services was a mission motivated by an important vision. The AAI PAT members were driven to achieve our goals, because it mattered to each of us, albeit in a variety of ways.

Don't consider the job finished now that the PAT has completed its initial mission — to define a vision and develop a roadmap. Each of us on the "global team" has a vested interest in some part or all of these goals and objectives. The PAT achieved hard-won alliances on issues that mattered most, and a workable consensus on others. Along the way, we bought into the process that brought about the commitment. We will take with us this process of sharing that creates enthusiasm to enhance our futures. We found ways to successfully bridge differences and truly bring the best of each choice into a product. The product is a "beginning" we will all expand to make a difference in our fields.

Although new ideas are often resisted, passions for specific ideas, principles, people or things reside within us all. In the quest to define the vision, goals and objectives for DoD's automated acquisition information future, each member of the team worked to construct a process within which individual passions could thrive. The vision and roadmap, and resultant products will indeed incorporate these ideas, and are designed to seek new "shake-up" ideas.

We are destined to find new ways to conduct our business Defense-wide and globally. The team and its dynamics are representative of DoD's diversity of backgrounds and interests. It proved to be an encouraging testing ground for paradigm change. Laboriously, even sometimes painfully, we achieved milestones — not closure — on the first phase of the vision and roadmap.

New ways of thinking won't show up in the mirror one morning. True measures of success are difficult to define — and to achieve, which is why they are so valued. The Deskbook itself is an idea. How good the idea is depends upon how we use it. The concept is much more than is immediately evident. It is an excellent beginning to push us to expand beyond our most rigid boundaries.

Endnotes

1. At press time, a Memorandum of Agreement is in coordination among the Service Acquisition Executives detailing the funding and staffing commitments of each Service to the Deskbook, and the Systems Acquisition Management Corporate Information Management (SAM CIM) effort is being restructured to implement the APSR recommendation.
2. Honorable Paul G. Kaminski, Under Secretary of Defense (Acquisition & Technology), "The Defense Acquisition Challenge: Technological Supremacy at an Affordable Cost," in a speech presented to the Industrial College of the Armed Forces, January 27, 1995.

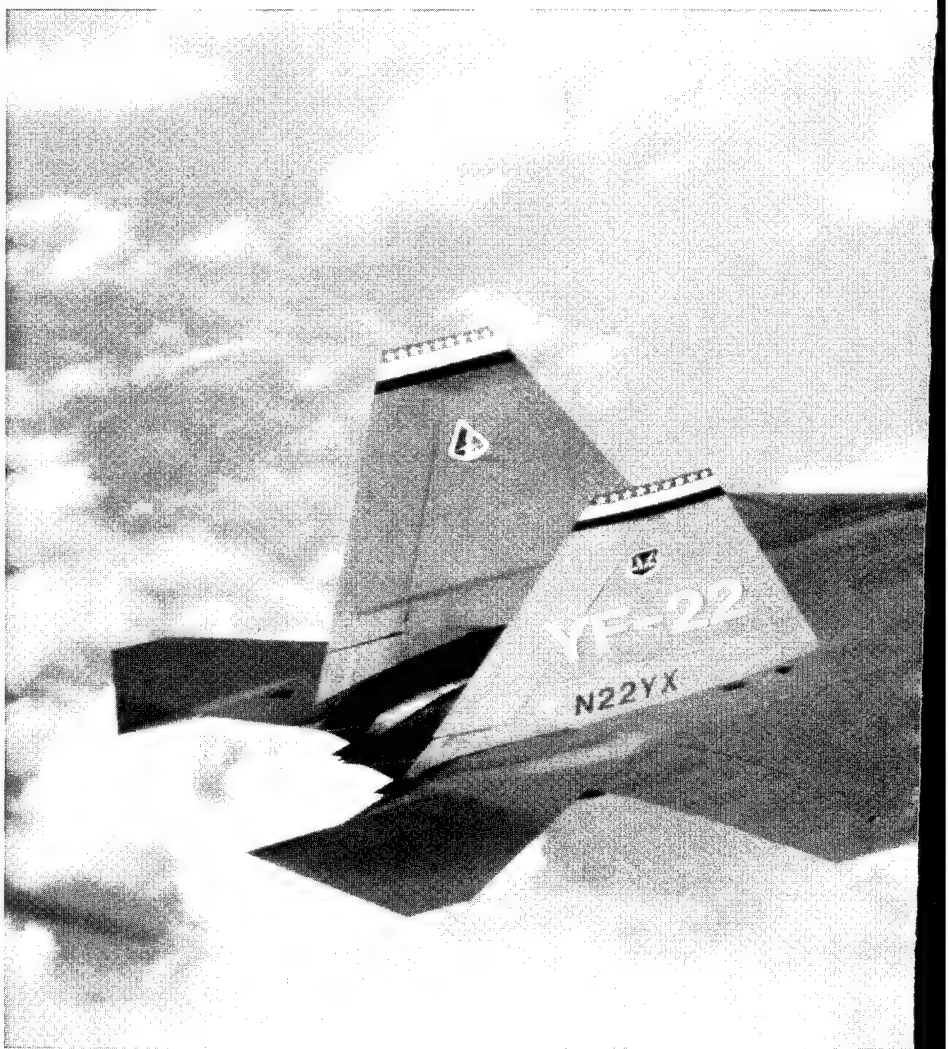
F-22 PROGRAM INTEGRATED PRODUCT DEVELOPMENT TEAMS

Capt. Gary F. Wagner, USAF • Capt. Randall L. White, USAF

The Air Force Materiel Command (AFMC) is implementing a management philosophy called Integrated Product Development (IPD) to improve Air Force acquisition. The Air Force defines IPD as follows:

A team approach to systematically integrate and concurrently apply all necessary disciplines throughout the system life cycle to produce an effective and efficient product or process that satisfies customer needs.

Ideally, IPD will enable program managers to more effectively and efficiently manage program cost, schedule and performance risks. This article highlights how the Air Force's



The U.S. Air Force F-22 Systems Program Office was the first Air Force program to implement the Integrated Product Development Team concept in development of systems for the F-22 aircraft. However, deployment of systems acquired using Integrated Product Development will

---

Capt. Wagner, USAF, is a Fighter/Bomber Engine Projects Manager, Propulsion Development Systems Office, Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio. He holds a Masters in Systems Management from the Air Force Institute of Technology (AFIT).

Capt. White, USAF, is a Security Officer, The Pentagon, Washington, D.C. He is a graduate of AFIT with a Masters in Systems Management.

F-22 Program is implementing IPD. Our goal was to examine IPD implementation in one program to serve as an example to other managers from which to learn. Our research examined how IPD impacted both senior management and lower-level team personnel. We chose the F-22 Systems Program Office (SPO) because it was the first Air Force program to implement IPD, and it had been doing so for several years. We believed it was the best source of data in the Air Force for researching IPD.

We did not try to define the success of IPD within the F-22 Program, since success is relevant to each organization's goals, resources and constraints. Also, IPD was very new in the Air Force, and deployment of systems acquired using IPD will not occur for several years — in the case of the F-22 Program, into the next century. For the benefit of those who may be implementing IPD, we offer our experiences with the various characteristics of the F-22 Program, and how one major aircraft program is successfully implementing IPD.

The goals of IPD are improving quality, productivity, production flexibility, and reducing product development time.

Photo courtesy Lockheed Corporation

not occur for several years — in the case of the F-22 Program, into the next century. Pictured: Lockheed F-22 Advanced Tactical Fighter.

Background

First, some background is appropriate before we discuss how the F-22 Program implemented IPD. The term "IPD" is one the Air Force adopted from McDonnell Douglas for a concept called Concurrent Engineering (CE). An Institute of Defense Analysis (IDA) Report, R-338, defines Concurrent Engineering as follows:

A systematic approach to the integrated, concurrent design of products and their related processes, including manufacture and support. This approach is intended to cause the developers, from the outset, to consider all elements of the product life cycle from conception through disposal, including quality, cost, schedule and user requirements.

The definitions of IPD and CE both reflect the idea of blending disciplines early in product development.

The goals of IPD are improving quality, productivity, production flexibility, and reducing product development time. This philosophy advocates collocated teams that use simultaneous engineering, design for manufacturing and assembly, flexible operations, and open sharing of information. Specifically, IPD designates these integrated teams as either Integrated Product Teams (IPT) or Integrated Product Development Teams (IPDT). The IPTs are structured around major subsystems, such as aircraft avionics or engines, and are responsible for all aspects of their products, including technical, contractual, and financial issues. However, other types of groups, such as func-

tional staffs, still exist within the IPD environment. In 1991, the Advanced Tactical Fighter Program, the forerunner to today's F-22 Program, adopted CE under the name of IPD as its approach to acquisition. In 1992, AFMC, the command responsible for cradle-to-grave acquisition and support of Air Force weapon systems, established a working group to develop and oversee the implementation of IPD throughout the Air Force.

To understand how the F-22 Program implemented IPD, we needed to develop a set of investigative questions that addressed specific aspects of IPD. After reviewing the available literature, we decided the following questions were key to understanding the IPD implementation process:

1. How are the IPTs physically structured, and how are the reporting chains-of-command configured?

2. How do the IPTs communicate internally within the teams and externally with other teams and customers?

3. How often and what type of planning do individuals and IPTs conduct?

4. How did the F-22 Program train team members, and how did it accomplish the cultural change involved in transitioning to IPD?

5. What types of integrated management tools did the teams use?

6. What major hurdles did the IPD teams encounter while implementing IPD, and how were they overcome? What do the teams recommend other organizations do to transition to IPD?

We decided to conduct on-site personal interviews to obtain the greatest level of detail and first-hand knowledge. Personal interviews also allowed us to witness facial expressions and other body language to factor in our conclusions — information that we couldn't have obtained via surveys or in telephone conversations. Naturally, we couldn't interview all SPO personnel because of their diverse schedules and time constraints; therefore, we selected a representative sample from throughout the F-22 organization. Altogether, we interviewed 20 of the 22 selected subjects independently. Initially, we interviewed the program director and deputy program director together. Next, we interviewed major subsystem IPT leaders, functional chiefs, and other selected IPT members as shown.

The next sections discuss some of the more important highlights from our interviews. We organized them according to each of the six investigative areas discussed previously.

SPO REPRESENTATION

IPT Teams	*Functional Support*	*Front Office*
Air Vehicle - 7	Projects Div - 3	3
Support - 2	Engineering Div - 2	
Engine - 2	Contracting Div - 1	
Training - 0	Finance Mgmt Div - 1	
	Test Div - 1	

Organizational Structure

First, we needed to understand the F-22 SPO's organizational structure. The four primary IPTs were the Air Vehicle IPT, the Engine IPT, the Training IPT, and the Support Equipment IPT. Each IPT had two team leaders; normally, one was an engineer, while the other was a program manager. Interestingly, nearly all the interviewees did not perceive any conflicts arising from two team leaders giving conflicting guidance. Each IPT further divided into many sub-IPTs. For example, the Air Vehicle IPT included the armaments, propulsion system, airframe, avionics, cockpit, utilities and subsystems, and vehicle management system sub-IPTs. An Air Vehicle Analysis and Integration team was also included as part of the IPT.

Functionally matrixed support personnel, such as contracting and finance, were physically separated from the IPTs for three reasons. First, there was not enough manpower to allow dedication of a functional representative to each IPT sub-team, as would occur in ideal IPTs. Second, most of the functional members had activities that affected the entire weapon system and spanned across all IPTs, so they needed to communicate with other functional workers to obtain a program-wide perspective. Third, they used common reference and training materials that were not practical to place in each IPT's area. The disadvantage, however, was most functional personnel realized that being separated from the IPTs may cause them to miss notification of important issues and decisions. They realized that it was very important to work hard to remain in the communication loop with the IPTs.

Another hot issue within the SPO was the performance evaluation of functional personnel. Upper management thought that it was probably advantageous that functional personnel reported via their functional chains as opposed to team-oriented chains. The reason was that IPT team leaders could not observe many of the func-

tional activities, and would therefore encounter difficulty in writing evaluations and obtaining the ratings their functional personnel deserved. However, team leaders did provide inputs to their functional personnel performance evaluations.

Finally, one of the big advantages of the IPT structure was that the system user, Air Combat Command, had local representatives on the IPTs. These representatives were active team members and provided on-the-spot inputs for requirement issues. This kept the user in the loop and provided a quick way of obtaining guidance on requirements.

Communication is Vital

The F-22 Program considered communication a great advantage — if not requirement — for successfully implementing IPD. The IPD structure allowed for increased communication. However, it was still up to each individual to remain in the communication loop, since IPTs could not effectively function without frequent communication among team members. As a result, meetings were prevalent in the IPTs, and the time spent in meetings was directly proportionate to the management level. Inevitably, disadvantages surfaced in having this number of meetings. Contracting and finance personnel were unable to attend many meetings due to the large number of sub-IPTs they supported, and because they were not collocated. Our interviewees believed that the most important advantage of collocation was enhanced communication with team members. The two most valuable communication mediums in the F-22 Program, according to our interviewees, were electronic mail and "across-the-aisle" sub-IPT communication. These means of communication were in keeping with the SPO's initiative of moving toward an electronic, paperless operation. Other communication tools to inform team members were Weekly Activity Reports (WAR) and trip reports. Management consistently posted WARs in one common room, allowing any team member access to an update on the entire program.

To achieve optimal benefit from implementing IPD, our interviewees stated that an organization should implement IPD from program onset.

Intense Up-Front Planning

One of the keys of IPD implementation was starting at the beginning of a program. To achieve optimal benefit from implementing IPD, our interviewees stated that an organization should implement IPD from program onset. Planning should be extensive, and from the beginning should be product-focused. It was important to design the program structure early and to incorporate a suitable contract type with detailed requirements for the tools essential to the IPTs. Only then should management organize personnel into teams. Also of great importance is government and contractors' planning for use of successful management tools such as an Integrated Master Plan (IMP) and an Integrated Master Schedule (IMS). The IMP describes the program's major events, while the IMS depicts when they occurred. The contractor as well as the government assigned focal point team members responsible for signing approval for closure plans for each criterion of the IMP. This encouraged government team members and their contractor counterparts to plan jointly as a team.

Training

Another key to IPD is training and education. Regrettably, F-22 SPO members had to learn about IPD through trial and error, work experiences and informal training sessions. One reason was the F-22 Program was on the cutting edge of IPD in the Air Force, which forced it to learn through experience. However, the SPO did have some effective training techniques. One technique required functional personnel to brief their individual functional areas to all team members who lacked experience in those functions. This fostered a team approach and ensured team members stayed abreast of other members' activities. Other team-building exercises that included either government and/or contractor personnel were another way to help transition to IPD. The F-22 Program also established a newcomer's briefing to help orient new personnel to IPD. This was particularly important in bringing members into the midst of the F-22 Program, who were unfamiliar with operating under IPD. The briefing also helped to reduce the slope of the learning curve.

Integrated Management Tools

The last of our six areas essential to IPD implementation is Integrated Management Tools. Ideally, these tools allow workers to track program development and permit prompt corrective action before problems become large. From the onset of the program, SPO upper management tried to give workers a toolbox from which they could draw various integrated management tools to do their particular jobs. Previously, we discussed two of the most important tools — the IMP and IMS. All of the management tools primarily provided information on schedules, costs, variances, and tasks

to be accomplished. Workers correlated IMP accomplishments and the Work Breakdown Structure with cost and schedule variances. Technical Performance Measures provided indicators to track how the product developed. The design of many of the management tools allowed lower-level workers to channel information upward to senior management to keep them informed on program status.

Lessons Learned

We asked each of the interviewees what advice they would provide other program personnel attempting to implement IPD. They responded with many valuable tips. First, one major hurdle to implementing IPD was the development of *Independent* Product Teams instead of *Integrated* Product Teams. When IPTs received the people, funding and authority to develop individual products, each of the teams concentrated solely on its product and over-optimized it. Teams would produce components of outstanding design that were not easily integrated with other components. Therefore, the SPO established critical Analysis and Integration teams so that the product teams interacted to ensure the F-22 Program assembled together as an integrated weapon system. A Weapons Systems IPT made up of the four IPT chiefs, functional divisional chiefs and the front office also helped cross-team integration.

Next, organizations should understand that IPD is not a panacea for all acquisition problems. The F-22 Program concept of IPD is not guaranteed to work for all programs, and other programs should tailor IPTs to fit their needs. Also, influences such as budgetary funding play major roles because a stable funding profile is essential to long-range planning. Another lesson applicable to all DoD programs is both sides of weapon system acquisition — industry and the government — must work together as a team. They must overcome the traditional adversarial government-contractor relationship. Interviewees thought this was easiest under a cost-plus-award fee contract because both sides had the same objective of allocating resources as wisely as possible.

Management believed the most difficult aspect to overcome for the contractors as well as the Government was functional organizations that were too concerned about career progression.

Management believed the most difficult aspect to overcome for the contractors as well as the government was functional organizations that were too concerned about career progression. Organizations should not underestimate the amount of bureaucratic resistance to implementing IPD. Also, formation into teams does not ensure that the necessary integration and communication occurs. Integration and communication are still individual responsibilities, and not every individual is comfortable with the IPD philosophy. Introverts uncomfortable with interacting with other disciplines sometimes prefer isolating themselves within their functional divisions, thus hampering the effective communication essential to IPD.

Conclusion

In conclusion, we examined the six areas of organizational structure—communication, intense up-front planning, training, use of integrated management tools and lessons learned—because we believed these areas vital to understanding how the F-22 Program implemented IPD. Other areas pinpointed as vitally important to the success of implementing IPD follow:

- The SPO emphasized planning upfront to establish an organizational and contractual structure that empowered workers at the lowest levels to develop their products.
- Interviewees stressed constant communication with all other functions of the IPT and other IPTs.
- Management conducted training, primarily during transition to IPD, but was beginning to reemphasize it.
- Team members tailored their own management toolbox to the activities necessary to perform their duties.

All the actions listed above were important. However, the most important lesson learned was *avoid letting Integrated Product Teams evolve into Independent Product Teams!*

References

1. Bucher, Tom, "Integrated Product Development," Unpublished Briefing to IPD Working Group, 27 October 1992.
2. Winner, Robert I., James P. Pennell, Harold E. Bertrand, and Marko Slusarczuk. "The Role of Concurrent Engineering in Weapons System Acquisition" (Institute for Defense Analyses Report R-338, Virginia, December 1988).
3. Wagner, Gary F., and Randall L. White. "An Investigation of Integrated Product Development Teams of the F-22 Program" (Air Force Institute of Technology Thesis AFIT/GSM/LAS/93S-19, September 1993).

Business Cost Estimating and Financial Management

Pilot Offering December 1995

The DSMC School of Program Management is developing a Business Cost Estimating and Financial Management (BCEFM) Workshop to teach students to apply BCEFM concepts, techniques, and on-the job experience. Functional interrelationships and opportunities among the disciplines of cost estimating, contract performance management, and financial management will be explored. The Workshop will provide training in Business/Financial Management or Program Control for the following areas:

- **Major acquisition programs — Acquisition Category I/II (ACAT I/II).**
- **Financial management organizations supporting matrix/basket program management offices or systems project offices for ACAT III/IV programs.**
- **Financial management organizations in laboratories, test and logistics centers.**
- **Matrix, major commands or systems command BCEFM offices responsible for leadership, policy, development/interpretation.**

The pilot offering will certify DSMC instructors, the functional board and Defense Acquisition University representatives in early December 1995. The first student offering is planned for late March 1996.

Course Eligibility

The BCEFM Workshop is a Level III course designed for acquisition professionals at the GS/GM 13-15 levels and military equivalents, grades O-4 and above. Students should be Level II-certified prior to attendance.

Upcoming Workshop

Retiring Dean Looks Back on His Vision and Offers Insights Into the Future

As I retire from the U.S. Air Force with 30 years of service (25 in acquisition-related jobs), I welcome the opportunity to reminisce a bit on DSMC history, especially the last 4 years; and to look forward, identifying some challenges in the future for the College.

First of all, let me say being a Dean at DSMC has been quite a rewarding experience. The College's faculty and staff are world-class, and the learning environment, both at our Fort Belvoir main campus and in our four Regional Centers, is second-to-none.

Early 1990s — A Time of Change

Looking back on my nearly 4 years at the College (I arrived in August 1991), I must say they have been extremely challenging, but also very rewarding. When I came to the College, I wrote down my vision of where I thought the College should be going in the next 3 to 4 years. Remember, this was a very tough and trying time for the College.

The ACQ 201 has really taken the school by storm and is probably, next to the Program Management Course, the biggest demand on resources.

- The College had just been advised that the Senior Acquisition Course (which we had been competing for) had been awarded to the Industrial College of the Armed Forces.
- The Defense Acquisition Workforce Improvement Act (DAWIA) had just become law, and was about to dramatically change the fortunes of the College.
- The College had just undergone a major reorganization, and we had developed a new Faculty Compensation Plan.
- A new Commandant was just coming aboard.
- Under DAWIA, the Defense Acquisition University (DAU) was established, and for the first time, would control both our manning levels and resources.

Changes had taken place or were about to take place in the early 1990s. I was lucky to be able to come into the College at that time, because the College needed vision and a new path upon which to embark to respond to these changes. I had just come over from Air Force Systems Command, where we were already implementing the Acquisition Professional Development Program (APDP). The Air Force's APDP was a forerunner to the DAWIA

Editor's Note: *Col. Zaleski, USAF, retired effective 30 June 1995. (See "Inside DSMC" column, this issue.) The views expressed herein are the opinion of the author, and are not necessarily endorsed by the Department of Defense or the Defense Systems Management College.*

and some believe, contributed to the details of the DAWIA itself.

My background in working the APDP was perfect preparation for my new job. The timing at the College was ideal to get the College moving under the DAWIA. My Air Force Systems Command experience helped me formulate a vision of where I thought the College should be moving. As I stated, I wrote down this vision in August of 1991, and I'd like to recap some of its main precepts, and discuss a few of the details and results that have taken place in the last 4 years.

Precept No. 1

Expand the College's products to accommodate the forthcoming DAWIA implementation. In 1991, as Dean of the Executive and Short Courses, I was responsible for all DSMC courses except one — the Program Management Course. It was at this time DAWIA was beginning to be implemented, and the requirements for the Department of Defense (DoD) acquisition workforce certification were beginning to evolve. Even though most of the energies and resources in the College had traditionally been dedicated to the Program Management Course, I knew then that the College needed to expand its products into other areas.

Shortly thereafter, we did a market analysis of where DSMC should be expanding its products...the rest is history. In 1991, the College had 23 courses. In 1995, we had 27 courses, and shortly we will increase to 30 courses. Of the 30 courses in 1996, only 9 were taught in 1991. The remaining 21 courses are new or substantially revised. This change was directly in response to DAWIA requirements.

Precept No. 2

Focus the College on products that contribute to DAWIA certification, and get out of the courses that do not. In 1991, the College offered courses that didn't support DAWIA certification. At the same time, there were other courses offered within the DAU consortium of schools, of which DSMC is 1 of 15, where there was a significant shortfall in meeting the customers' requirements.

Just as the defense industry recently has repositioned itself into the markets and products where they could either be No. 1 or No. 2, I thought the same should apply to the College — offer the products where we have strengths, and be in the marketplace where the demand was the greatest. This is exactly what we started to do in FY 92. Over time, we deleted all the non-mandatory short courses, and focused on those with the greatest demand. In 1991 the College offered 23 courses, 3 of which were mandatory. In 1995, we have 27 courses, which (with the exception of our 3 executive courses) are mandatory courses.

But perhaps the biggest push came in the old Acquisition Basics Course, now referred to as the Intermediate Systems Acquisition Course or ACQ 201. The course was developed in 1990. In 1991, DSMC presented just five offerings. In 1995, we have grown over sevenfold — 38 offerings. Now the DAU wants us to meet 100 percent of their requirement in FY 96. We are planning over 60 offerings. What phenomenal growth in such a short period of time! The ACQ 201 has really taken the school by storm and is probably, next to the Program Management Course, the biggest demand on resources. As a result, we have focused on the courses where we want to be No. 1 or No. 2 throughout the consortium and ensuring that we have the products that the customers want.

Precept No. 3

Drastically increase student throughput, while maintaining quality of our courses. This is sometimes tough to do. In 1991 the writing was on the wall in DoD for increased demand of DSMC courses. Some studies had identified as many as 500,000 personnel in the DoD acquisition workforce business. Actually this number has been refined today to approximately 120,000 personnel that need to be trained. However, I arrived at a time when the Defense Management Review Directives (DMRD) were taking their toll in terms of consolidation throughout the DoD and downsizing of the workforce. The timing was bad to be talking more throughput at the College, especially since we had just increased to 840 students per year in the Program Management Course. The faculty was just plain reluctant to think of any growth in the executive and short courses.

So I started the multiplier method program at the College in 1992. At the time, it had six major thrusts. The objective of the program course was to find ways to increase throughput of our courses without having to hire more faculty. One of the major thrusts involved distance learning through

VISION

Precept No. 1: Expand the College's products to accommodate the forthcoming DAWIA implementation.

Precept No. 2: Focus the College on products that contribute to DAWIA certification; and on the flip side — to get out of courses that do not contribute.

Precept No. 3: Increase student throughput drastically, while maintaining course quality.

Precept No. 4: Take more of our educational products and services/offerings to our customers versus them having to come to Fort Belvoir.

Precept No. 5: Establish the College as the Center of Academic Excellence for the Program Management Courses.

satellite links to our four Regional Centers. In 1992 we tried to get this initiative going, but ran into problems because: (1) the expense was projected to be about $1 million for both uplink and downlink capabilities to the satellite; and (2) color of money — DSMC is funded by Operations and Maintenance money, but we needed Procurement dollars for the satellite equipment. Procurement dollars, for some reason, were tough to come by through the DAU. Well, I am happy to report after 3 years of trying, it finally looks like the DAU will fund the distance learning capability at the College, albeit a little different than first envisioned.

Among the multiplier methods that I discussed, the biggest payback was increasing the size of our classes. In 1993 and 1994, we created two 60-person classrooms in Bldg 226, Scott Hall. This has really helped throughput, though some instructors at the College argue that learning suffers with such a large number of students in the class at the same time. This phenomena really has never been objectively verified. In fact, the courses taught in the 60-person classrooms have ranked as some of the best courses. (These are primarily ACQ 201 offerings.)

Other multiplier method thrusts were: (1) development of correspondence versions of two of our courses; (2) an adjunct faculty program at Patuxent River Naval Air Station that worked well in teaching of test management courses; and (3) creation of an equivalency examination for the ACQ 201 course. The results, once again, have been phenomenal. Since 1992 we have gone from 5,400 students, to 9,016 students planned for FY 96 — almost double, while simultaneously reducing faculty.

Precept No. 4

Take more of our products and offerings to our customers, especially at our Regional Centers, versus having them come to Fort Belvoir. Again, when I came to the College, we offered less than 80 section weeks of our courses off-site. At that time, there was some reluctance in the College to take our courses outside of the Washington, D.C. area. Many of our courses relied on speakers from the Pentagon and Washington, D.C. area, and course directors thought course quality would suffer by taking them outside the D.C. area.

When I became the Dean of Executive and Short Courses, I inherited the management of DSMC's four Regional Centers. At that time, my Regional Directors were clamoring for more courses and section weeks. The Services' Directors of Acquisition Management (DACM) were doing the same. The time was right to expand into the Regions. We are now planning to have 144 section weeks of mandatory courses in our four Regional Centers in FY 96, plus many more at a variety of user locations across the continental United States.

Precept No. 5

Become the Center of Academic Excellence for the Program Management Courses. This stemmed from a conversation I had in 1990 with General Ronald Yates, Commander, Air Force Materiel Command. At that time we discussed the fact that much of the acquisition training curriculum at the College and throughout the DoD was taught at the same level, whether it was a fundamentals course (Level I) or our Program Management Course (Level III). We both agreed there should be a progression of learning in our Program Management courses as one moves through the Level I, II and III courses, in accordance with the DAWIA.

This conversation with General Yates led me to try and convince the College that we needed to change our curricula and organization, and move to a building-block approach for the content in our courses. I briefed this concept to Admiral Vincent in the summer of 1991 before we both arrived at the College. The key ingredient was that one school needed to design a logical and progressive thread through the various courses in each functional area, much like is done in our colleges and universities' curricula today. This control of the design and curricula to ensure minimum overlap and a progression of learning is the foundation for a concept I have been advocating in the DAU arena known as Centers of Academic Excellence.

Recently, this building-block approach has come into maturity with the introduction of the new ACQ 101 course, Fundamentals of Systems Acquisition Management, and ACQ 201, Intermediate Systems Acquisition, and our Advanced Program Management Course (PMT 302), all of which were developed from a master competency matrix, and are now managed by one organization within DSMC, namely the School of Program Management.

Besides the history that I just mentioned, I still believe the College and the DAU have significant challenges ahead in the late 1990s. What follows are some of my ideas and recommendations on thrusts that are critical for the near future.

Recommendation No. 1

The first thrust or recommendation for the future is what I call a two-tiered acquisition education structure. In this era of reduced defense spending, the entire DoD acquisition training and education structure needs to be reviewed. In the past few years, I have witnessed some excellent cost-reduction initiatives by the DAU, including eliminating unneeded courses and consolidating the proliferation of similar-type courses into a few courses that can be taught across the Services. These moves have been positive.

The next cost-reduction move, however, is what I recommend as a streamlined, two-tiered educational structure. In some ways this structure exists today; however, it is fraught with many inefficiencies. The first tier

is the DAU consortium. Currently there are 15 schools in the consortium — far too many. My vision is to have four main acquisition schools — one DoD school (DSMC), and one main school for each of the Services. This would eliminate many overlaps and inefficiencies.

The second tier would be the Service-specific schools that concentrate on Service-unique teachings, like the Air Force's Integrated Weapon System Management Course (IWSMC). In this tier, there should be but a few schools — perhaps one or two per Service. Just like the Defense Management Review consolidated the Services' laboratories, accounting and finance offices, etc., the same streamlining is needed for the training of the DoD acquisition workforce.

Recommendation No. 2

My No. 2 thrust for the future is establishing Centers of Academic Excellence, which I mentioned in Precept No. 5. In 1993, I introduced this concept to the DAU — a concept that has been partially implemented. For example, because of this concept, DSMC designed all the Program Management Courses (that's Level I, Level II, and Level III courses).

Basically, what is envisioned is that for each acquisition discipline — program management, acquisition logistics, manufacturing management, test and evaluation, etc. — there would be one school designated to be the Center of Academic Excellence. Each Center would have responsibility for the design and maintenance of all courses in a particular discipline. A Center, by controlling the design, can ensure the courses are structured in a logical way so there is a progression of learning as a student moves through the various levels of training.

In the other functional areas, such as Systems Planning Research Development and Engineering (SPRDE), Acquisition Logistics, etc., this thread does not exist throughout their various levels of courses. Often, overlap of content among courses and a cohesive progression of learning is lacking.

This recommendation again implies streamlining, and complements the first recommendation in that resources can be pooled and consolidated into these Centers so that there is a synergy of expertise all in one place. This consolidation not only can be advantageous to designers and maintainers, but can serve as a research focal point for the various disciplines.

Recommendation No. 3

The first two recommendations focused on streamlining in a downsized environment. Recommendation No. 3 concentrates on the student — specifically, my vision of what is missing in our education and training process today, and what should be major themes of training in the future. I will discuss three areas under this recommendation.

Contractor Management Training. In my many years of acquisition training, I have always been amazed that the emphasis has been on teaching the acquisition workforce how to function within the DoD or government system. Program managers are taught the government rules and regulations, how to obtain and manage their monies through the PPBS system, and basically how to survive in Washington. These are all essential areas of study. However, to me the greatest shortfall is — how do I deal with and manage the defense industry contractor?

In the American system, industry is really where the rubber meets the road. It is where all our products are designed and manufactured — not in Washington. Yet, the emphasis on acquisition management training has been deficient in this area. This is now an especially important subject since the integrated product development team concept is in vogue. Look at the courses in the current DAU Catalog. How many teach our people to work with their counterparts in industry; how many teach our program managers how to effectively interface with top industry management? This area of concentration, in my mind, is long overdue.

Acquisition Generalist. The second area that I want to discuss as a major theme of training in the future is an area that I refer to as acquisition generalist. A major part of DAWIA is the identification of acquisition career fields, and the training, education and experience requirements in these career fields that one needs to achieve to become a Level III expert. This focus implies specialization and stratification of the defense acquisition workforce. These implications, I submit, might have been OK when acquisition personnel were abundant in the 1980s, and there was not an emphasis on integrated product and process teams like there is today. With today's downsizing emphasis, system program office personnel are finding themselves having to do more and more outside of their acquisition specialties. They, in a sense, are being driven to become acquisition generalists or "jacks of all trades." My recommendation is a movement to more integrated acquisition training, like DSMC's ACQ 201, and a migration of the acquisition workforce out of specialized career paths, and into a catch-all, generalized field like program management.

A corollary to this is that the DAU consortium needs more acquisition generalists as instructors and professors — people that can interrelate or integrate disciplines in the classroom versus just teaching highly specialized subjects as is the case in many of our courses today. The DSMC's move to hire ex-program managers to be Executives in Residence in 1991, in my mind, was a move in the right direction.

Continuing Education. The third part of the recommendation for the

future in training the acquisition workforce is the area of continuing education. Much has been accomplished in the last 4 years to identify, design and produce the mandatory training courses for all the career fields. The emphasis, in my mind, has been the right one. As these mandatory courses mature and train the workforce, however, the need shifts to consider the continuing education of the trained acquisition workforce.

When I think of continuing education, the Contracting career path comes to mind. Not only does it have its own DAU-mandatory courses, but it has a nationally recognized certification program with the National Contract Management Association (NCMA) that includes many accredited college courses, symposiums, conferences, professional chapters, etc. — many opportunities to broaden the worker and especially, to stay current. I envision such opportunities being available for all the other career paths as well. The structure and emphasis for these opportunities needs to be one of the next priorities of the DAU. The acquisition workforce needs to continue to fine-tune their skills for the acquisition challenges well into the 21st Century.

Parting Thought

In conclusion, let me say I was very fortunate to be assigned to DSMC for my last career assignment, and especially to be able to contribute to and oversee so much of the vital changes at the College. As my Air Force career comes to an end, I leave with such a tremendous sense of pride, knowing that our acquisition workforce is the best trained it has ever been, and that our fighting forces are equipped with the finest weapon systems in the world — that is the bottom line in the acquisition management area for both DSMC and the DoD. Finally, I would like to say to all the people at DSMC — "Well Done" — two words taken from the last stanza of my alma mater, West Point.

As a follow-up to the "DSMC Electronic Campus Update" article published in the May/June 1995 *Program Manager* magazine, we offer some basic commands for using the file transfer protocol (FTP) software.

Command	Description
!	Executes a command on the local machine. ! [command] ! cat cim-bib.txt | more *Displays contents of cim-bib.txt by pages.*
bye	Terminates ftp session.
cd	Changes to another directory on remote machine. cd [directory name] cd pub *Moves you into pub directory.* cd. *Moves you up one directory level.*
dir	Displays detailed information about a file or directory.
get	Gets a file from the remote machine. get [file name] get cim-bib.txt
help	Displays a command description. help [command] help dir
lcd	Change directory on local machine. lcd [directory] lcd bibs *Moves you into bibs directory.* lcd.. *Moves you up one directory level.*
ls	Displays a short content list of present directory.
mget	Gets one or more files from remote machine. mget [file name] [file name] [file name].... mget cim-bib.txt data.txt internet.txt
pwd	Displays the name of the current working directory on remote machine.
quit	Terminates ftp session.

If you have questions concerning the use of ftp software or require commands beyond the ones above, please contact your LOCAL NETWORK/SYSTEMS ADMINISTRATOR. Your local administrators will be able to provide you with information concerning your specific hardware and software usage. Unlike your local administrators, the Defense Systems Management College does not have the available resources to be familiar with each customer's particular system set-up.

Defense Systems Management College

Alumni Association

12th Annual
Program Managers Symposium

July 17-19, 1995
Fort Belvoir, Virginia

"IMPLEMENTING ACQUISITION REFORM"

WITH THE PASSAGE OF THE FEDERAL ACQUISITION STREAMLINING ACT OF 1994, AND THE NUMEROUS RECOMMENDATIONS OF ACQUISITION REFORM PROCESS ACTION TEAMS, DEFENSE ACQUISITION REFORM IS MOVING TO THE IMPLEMENTATION PHASE

Speakers, panels and workshops will address the theme and present views from the Congress, Department of Defense, Auditors and Inspectors, the Services, industry and the media. Representatives from industry, government and the military, as well as senior officials from DoD and each of the Services, will discuss the impact and importance of acquisition reform implementation.

Please send information about the 12th Annual Program Managers Symposium and Alumni Association membership to: (Please print or type)

Name _____

Organization _____

Address _____

City _____ State _____ Zip Code _____

Mail to: DSMC Alumni Association
7731 Tuckerman Lane, Suite 131
Potomac, MD 20854

800-755-8805
301-309-9125
Fax 301-309-0817

DON'T MISS IT!

For a copy of the program and registration information, return the coupon above by mail, or Fax 301-309-0817, or call 800-755-8805 301-309-9125.

GE LEADERSHIP SCHOOL HOSTS DSMC DELEGATION

Mary-jo Hall

Where would you go to benchmark methodologies used by a successful organization to train leaders as world-class commercial consumers? On May 8th and 9th, DSMC's Commandant, Brig. Gen. Claude M. Bolton, Jr., USAF, and four members of the organization visited the GE Management Development Institute (MDI) at Crotonville, New York. They were accompanied by Dr. Tom Cooper, the GE Vice President for Federal Systems, who coordinated the visit.

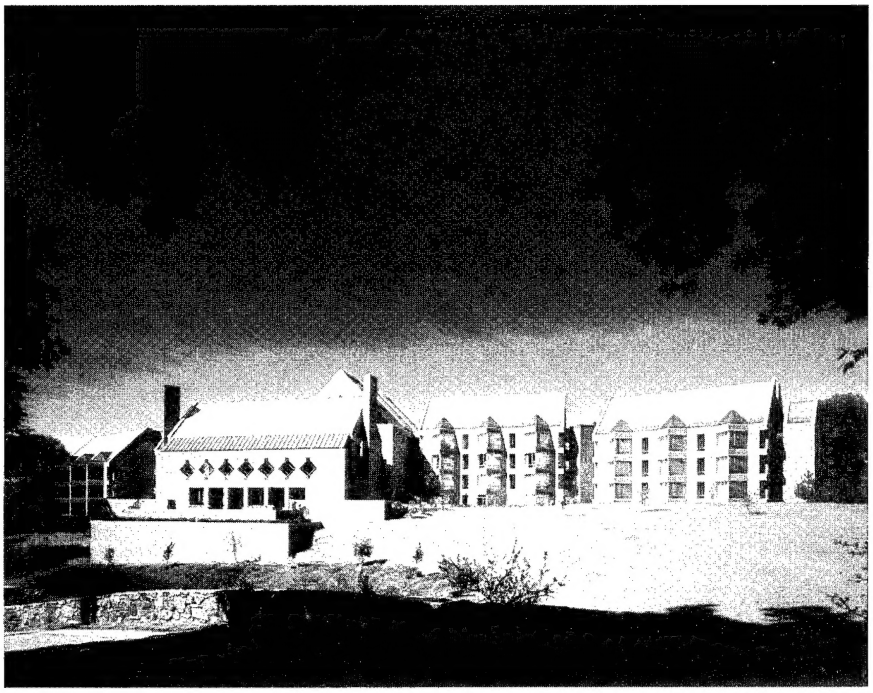


Photo courtesy of the GE Management Development Institute

Once a private estate, Crotonville is now a world-class conference center. The GE Management Development Institute has used Crotonville as its headquarters since the early 1950s.

Facilities

Established in the 1950s, the GE MDI is one of the oldest corporate residential education centers in North America. Thousands of managers and executives go each year to expand their knowledge of and practice leadership skills. Located on 52 acres, 25 miles north of New York City, MDI is a picturesque estate with a view of the Hudson River.

The DSMC delegation toured the facilities, including "the pit" — a forum where leaders from the 12 separate companies owned by GE gather to discuss major organizational initiatives in a free-flow format. Physically and organizationally, the room is designed for give and take. The speaker is literally at the bottom of a "pit." Members are encouraged to speak out, argue and challenge leaders. Discussions with the director of the center, Steven Kerr, and various team leaders covered several GE business concepts:

- GE "Workout"
- Leadership Development at GE
- Bullet Train
- Change Acceleration Process
- Sharing Best Practices
- Distance Learning

GE "Workout"

Like the military, GE trains the way it does business. Productivity is key. Using the "Workout" concept to separate non-value added work from processes eliminates bureaucracy and red tape. Jack Welch states that, "Workout is designed to create an environment where every man or woman in the Company can see and feel a connection between what they do all day...and winning in the marketplace...the ultimate job security." An "action workout" is a 2- to

Dr. Hall is the Special Assistant for Quality, DSMC.

4-day event focused on implementing real-time change. Such changes can be in processes or interaction among people. General Loh, Air Combat Command (ACC), Langley Air Force Base, Va., has frequent dialogues with Jack Welch, and is now piloting the "workout" concept at ACC.

Leadership Development at GE

Aspects of the GE leadership development process are similar to the acquisition certification process in DoD. For example, the MDI accomplishes leadership development in four distinct stages, beginning with new hires, through mid-level managers, to executives:

- Competency
- Mastery
- Functional Leadership
- Business Leadership (Management of Corporate Initiatives)

These stages GE refers to as "moments of opportunity" — key career transition points when a manager is most impacted by training. Their businesses contribute real problems as case studies for action learning. Teaching content is linked to GE themes, which are the building blocks for every course:

- Boundaryless Leadership
- Competitive Best Practices
- Commitment to Integrity
- Cultural Diversity
- Competitive Opportunities in Global Markets

Using the "action-oriented learning" concept, instructors ask employees from various functional departments to use their unique tool list to plan how the objectives of each initiative will be met. For example, engineering department members would use engineering principles to develop an action plan to achieve specific objectives of each initiative. This action plan becomes an option for solving real business dilemmas.

"Bullet Train"

The "bullet train" approach is also to increase productivity. It incorporates a continual improvement or reengineering methodology, process mapping, customer needs mapping, and some of the following management decision making tools:

- Five Whys
- Benchmarking
- Brainstorming
- Fishbone
- Force Field Analysis
- Pareto Analysis
- Risk Assessment

To accomplish goals, the "bullet train" approach is used as a metaphor to emphasize the speed desired to complete projects. It uses the following management concepts:

- leadership involvement;
- boundaryless teams, which are cross-functional groups similar to the concept of Integrated Product Teams;
- breakthrough targets, which incorporate "stretch goals" to push productivity levels;
- disciplined processes to reduce variation; and
- unprecedented speed in every product and service.

Change Acceleration Process

The Change Acceleration Process (CAP) exemplifies "finding a better way...everyday." As a cultural revolution, it builds speed, simplicity and self-confidence in every employee, with the ultimate goal that GE will become the most productive company on earth. Simply stated, it is a *power booster for change.*

Sharing "Best Practices"

Another aspect of the training is sharing "best practices." Jack Welch spends 40 percent of his time on "people issues." He spreads the word on best practices to facilitate sharing between companies. Unlike many annual reports, GE's report gives credit to outside companies for providing benchmarks that contribute to their [GE's] success. As inspiration to increase their own productivity, GE uses any source they perceive as "working smarter."

Distance Learning

Like DSMC, GE Crotonville will continue to take training to its customers. "Virtual Crotonville" is a concept aimed at using all resources to produce the educational experience typical at Crotonville, anywhere in the world. It is extending training to other locales but maintaining the spirit of what happens at Crotonville.

Summary

Crotonville also serves as a megaphone for the GE culture. In all aspects, it climatizes managers into the key values and norms of the organization. As an important management forum, it provides a means for key executives to stay in touch with the workforce, to sense the mood of employees, and to view the skills of participants in a real-time learning experience.

The visit to GE was mutually beneficial. Besides many similarities in learning techniques and format, GE was interested in DSMC's Management Deliberation Center and the concept of using groupware for decision making. Both groups made the commitment to continue the exchange of ideas — an exchange ultimately expected to result in enhancing the respective learning environments of both organizations.

Bibliography

1. Conger, J., *Learning to Lead* (1992)

2. Slater, R., *The New GE* (1993)

3. Ticky, N. and S. Sherman, *Control Your Destiny or Someone Else Will* (1993)

4. *GE Crotonville Corporate Education Catalog — 1995*

PRODUCTION READINESS REVIEW REINTEGRATION - THE TIME IS RIGHT

Bill Fournier

In the early 1970s, Production Readiness Reviews (PRR) were separated from other design reviews to provide an increased emphasis on manufacturing concerns. This approach did not succeed in elevating manufacturing concerns to an equality with performance. I suggest recent policy changes and new management tools are increasing the emphasis on manufacturing, and thus, separate PRRs are no longer needed.

The February 1991 DoD 5000 policy elevated manufacturing concerns to an equality with performance and encouraged a Concurrent Engineering (CE) approach of developing the design and manufacturing processes in parallel. The 1994 landmark acquisition streamlining legislation, commonly referred to as FAStA, and 28 April 1995 Under Secretary of Defense (Acquisition and Technology) Memorandum, "Reengineering the Acquisition Oversight and Review Process," shift the emphasis toward streamlining DoD's operations, reducing cost and using Integrated Product Teams (IPT). The increasing acceptance and availability of Computer-aided Design and Computer-aided Manufacturing make it much easier for manufacturing concerns to be integrated into the design before the drawings are released.

The time is right to reintegrate PRRs into Preliminary Design Reviews (PDR), Critical Design Reviews (CDR), and Functional Configuration Audits. These three reviews occur naturally about the right time for the multiple PRRs, while PDRs and CDRs already require substantial aspects of a PRR. Overall, this proposal saves money and manpower; aligns better with policy shifts toward streamlining, IPTs and CE; and thus functions better in our brave new world.

NEW OR REVISED DSMC PUBLICATIONS

The following new or revised publications are now available from the Defense Systems Management College (DSMC). Government employees can obtain a single copy of each publication by sending a written request on letterhead stationery to: DSMC; ATTN: AS-PR, 9820 Belvoir Road, Suite G38, Fort Belvoir, VA 22060-5565. Nongovernment employees and government employees requesting multiple copies should contact: Superintendent of Documents, Government Printing Office (GPO), Washington, D.C. 20404. The GPO accepts Mastercard and VISA orders over the phone at (202) 512-1800. When ordering, please provide the item stock numbers, as listed below.

Glossary of Defense Acquisition Acronyms and Terms, 6th ed. (DSMC, March 1995). This glossary contains most acronyms, abbreviations and terms commonly used in the weapon systems acquisition process within the Department of Defense (DoD) and industry. For persons outside the DoD who need a generic as well as Service-unique reference, the glossary is particularly useful. Also included as an appendix is an updated list of international terms. **GPO Stock Number: 008-020-01354-4 ($11.00)**

Joint Program Management Handbook (DSMC, 1994). This edition of the *Joint Program Management Handbook* updates and replaces the *Joint Logistics Commander's Guide for the Management of Joint Services Programs*, 3rd ed. (DSMC, 1987). Included in the handbook are changes in the joint requirements process; and the 1991 and 1992 revisions of the DoD 5000-series directives and instructions. If you are new to the acquisition process or unfamiliar with changes legislated or implemented throughout the acquisition arena since 1991, you may find it beneficial to use the Guide in concert with the separately published *Introduction to Defense Acquisition Management*, 2nd ed., by Joseph Schmoll* (DSMC Press, 1993). **GPO Stock Number: 008-020-01351-0 ($3.75)**

***Ed. Note**: Mr. Schmoll's book can be ordered by referencing **GPO Stock Number: 008-020-01297-1 ($2.25)**.

FROM THE COMMANDANT

Hello and greetings again from DSMC. By the time you read this edition, a significant milestone will have taken place here at DSMC. The 20-week PMC (Program Management Course) will be no more. On 9 June 1995, we will graduate the last 20-week PMC class (PMC 95-1).

The College has had the 20-week PMC since its inception in 1971. It was split into PMC-A and PMC-B in the 1980s; PMC-A was 6 weeks long, and PMC-B was 14 weeks long. However, both were required to successfully complete PMC. Hence, it was still a 20-week course. We recombined it into the 20-week PMC in the late 1980s. As I mentioned in the last edition of this magazine, the PMC was reviewed, restructured and piloted in a 14-week course titled the Advanced Program Management Course (APMC). We believe it is a better course, requiring prerequisites and better addressing the needs of the acquisition workforce. While we will be saying good-bye to the last of the 20-week PMC on 9 June, we will be saying hello to the first of the 14-week APMC. On that same day, the first of the APMC students will graduate. As you can see, 9 June marks a truly significant day in the history of DSMC. We are very pleased with the quality of education we have provided throughout the years in our 20-week PMC.

Many of us have benefited greatly by attending that course. The weapon systems programs we have managed over the years have also benefited along with the men and women who use the systems defending this great country of ours. At the same time, we at the College are proud of the steps we have taken to improve the PMC, which has resulted in the APMC. We believe it meets the needs of the workforce, but we are not resting on our laurels. We will be analyzing the student and instructor APMC feedback during the summer to continue to improve the course. The next offering of the APMC will be Sep 95. This will be a full class with an anticipated student enrollment of 420 — and we will be ready.

Aside from the PMC/APMC news, I'd like to give you an update on the EPMC discussed in previous editions of *PM* Magazine. As you may recall, EPMC is designed for ACAT I/II program managers, deputy program managers and PEOs. We have had three offerings of the EPMC since last Sep. We have received good feedback from each offering; most *very* good, and some not so good. We have taken all the feedback and made the EPMC better. I have said all along that any EPMC offering is not complete until we receive the student feedback 6 months after graduation. That has now happened. Members of the first EPMC class returned to the campus and gave their feedback to the EPMC staff as part of the current EPMC class. It was extremely beneficial to the staff and the current EPMC students. We were told the EPMC was the best education/training received to date: "I was 6 months ahead in my program when I returned from the EPMC; this needs to be a mandatory course for all ACAT I/II PMs, and the Services must ensure that happens." These were encouraging comments along with other survey results. We believe we have a hot course here. To follow this success, and once again responding to customer demands, we are developing a course for ACAT III PMs. We plan to begin offering it in the Sep-Oct 95 time frame. I will give you more information later; however, I can tell you now we are looking at a 2-week course emphasizing "survival" tools needed to manage such programs efficiently and effectively.

As you can see, we remain pro-active and dedicated to improving what we do to educate the acquisition workforce. Let us know what we can do to continue this excellence with you. Until the next time...

— Brig. Gen. Claude M. Bolton, Jr., USAF
Commandant